

By spending a little bit of time every week, you can avoid some costly car repairs and keep your car running in good condition. Check the fluid levels in your car every time you fill up. This is an easy way to avoid trouble and to determine whether something is wrong. If you find that any of your car fluids need filling regularly, there is probably something wrong that you should have checked.

Check under your car for leaks, which could indicate the presence of problems. Red leaks are probably automatic transmission fluid, possibly caused by an overfilled transmission. Rust-colored leaks may mean a leaking radiator hose or overflow from the radiator or air conditioning condenser. Black or brown leaks are probably engine oil or rear axle lubricant and may indicate that the rear cover bolts are loose. Green leaks are usually antifreeze. Clear water, probably from the air conditioner on a hot day, is normal.

Your owner's manual is the best resource for maintenance information. The manual will tell you exactly where to find certain fluids and identify the parts of your engine. If you don't have a manual, you can order one through the car dealer.

Preparing for a long trip

Before you go on a long car trip, you should check you a few important areas of your car. A brief check can save you a lot of problems later on.

Make sure that your car has proper amounts of the various fluids. These fluids include automatic transmission fluid, brake fluid, power steering fluid, windshield washing fluid, radiator coolant, and oil. For information on checking and refilling these fluids, see the individual headings in this topic.

Check your tires to make sure that they will hold up for the trip. For further information see "Tires," "Tires, pressure," and "Tires, treads."

It is a good idea to bring certain emergency items in case your car breaks down. For a suggested list of emergency items to bring, see "Emergency Items" under "Auto Information."

Winter tune-up

Having a complete tune-up in the fall makes sense, because the mechanic can perform all the normal checkups in addition to those necessary for cold weather. A thorough tune-up should include the following:

- * an oil change (to lighter viscosity)*
- * a battery, alternator, and voltage regulator check*
- * an antifreeze check, (change if antifreeze is two or more years old)*
- * waterproofing on exposed ignition wires*
- * an emissions system check for leaks*
- * a brake and fluid check*

- * a heater, defroster, and light check*
- * a change to snow blades on windshield wipers*
- * a change to snow tires if you use them (this should be done before the first snowfall, but not too early because snow tires are not fuel-efficient).*

Air conditioner

Manufacturers recommend that you run the air conditioners in your car for at least five minutes every week, even in winter, to keep the hoses pliant and the moving parts lubricated. Keep the condenser and the car grating clear of leaves, bugs, and dirt to allow proper air flow for the air conditioner.

If you suspect any problems with your air conditioner, have it checked out by a mechanic. Most air conditioning units are sealed, and it is dangerous to open them up yourself.

Air filter

An air filter keeps bugs, leaves, dirt, dust, and other small objects out of your car's air intake. If the filter is dirty, vital engine parts can become fouled with dust and grit, considerably reducing gas mileage. To check the air filter, remove the wing nut on the top cover of the air cleaner, release the clips, and remove the cover, giving you access to the filter. If dirty, replace with a new, top-quality filter. If you cannot replace the air filter right away, turn it upside down and lightly tap it to shake the dirt loose. Replace the cover, clips, and wing nut carefully, making sure all parts fit tightly.

- {ewl uwmf, MVWMF11, home.wmf} 1. air filter*
- 2. pvc air filter*
 - 3. idle stop solenoid*
 - 4. pvc valve*
 - 5. gaskets*
 - 6. idle mixture screws*

Alternator

The alternator recharges the battery and provides power needed to run the headlights, the stereo, and so on. A burning odor could indicate an alternator problem, though it could also indicate trouble with areas such as the brakes, the wiring, or the water pump.

If you see the red light on your dashboard that reads Charge, Alt, Alternator or Battery, you probably have about a half hour of driving time left.

Do not stop the engine --because you

will not have enough power to restart it--but do cut back use of power (shut off the air conditioner or heater and the radio, and avoid using power windows and seats). If you are far from home you can have a gas station extend your driving time by giving the battery another half hour's worth of charge; on your way home, cut back use of power, and drive without stopping. Then have a mechanic check the alternator, regulator, belts, and fuses.

A temperature warning light may indicate a broken belt (because the same belt that drives the alternator also drives the water pump). You will need to stop driving to prevent overheating.

- {ewl uwmf, MVWMF11, home.wmf} 1. *alternator*
2. *distributor cap*
3. *distributor cable terminal*
4. *alternator belt*
5. *point set*
6. *rotor*

7. condensor
8. spark plug

Automatic transmission fluid

Automatic transmission fluid is used to lubricate the many moving parts inside the transmission. The transmission should last the life of the car, but if the fluid level is too low, gears will be damaged and the transmission may require an expensive repair.

If the fluid level is consistently too low, there may be a leak. When you check the fluid level, see that the existing fluid is clear and red-colored. If it looks dark, smells burned, contains bubbles, or is streaked with tiny metal particles, have a transmission specialist look at it.

Battery

A maintenance-free, sealed battery may have a charge indicator. A green center on the indicator port means a full charge, no green center means a charge is needed, and a translucent or light-colored indicator with neither a dark nor a green spot means the battery needs replacing. If you don't have a "maintenance-free" battery, water and acid levels must be maintained to keep the battery fully charged. See the manual for information on how to maintain an older type battery.

Battery terminals and cables

Check for cracks in the battery housing and loose cables. To clean the crud from the top cover and around the terminals, apply a mixture of baking soda and water with a brush. Be careful not to get any of this crud on your hands or clothes; but if you do, wash it off immediately. Do not pry terminals from the post with anything but a special puller tool. After the terminals are cleaned, smear petroleum jelly around them to prevent buildup.

Brake fluid

Consult your car manual to see where the brake fluid is located. The fluid should be within a ½ inch of the top of the reservoir. The brake fluid level should stay at much the same until your brakes start to wear out, at which time the level will start dropping. Keep an eye on the brake fluid level, and if it gets toward the "minimum" marking, then get your brakes inspected.

Brake fluid is usually refilled when you have your brakes checked or serviced, but if you want to refill it yourself, be sure to get the right kind of brake fluid (the manual should say the type, but not necessarily the brand), and be careful not to contaminate the existing fluid with any dirt. Dirt in the brake fluid can damage your brakes.

Brakes, disc and drum

All of the following symptoms are probably due to excessive brake wear. Other possible causes are indicated where applicable. In all cases, a mechanic should inspect the brakes.

- * Grinding sounds are heard.*
- * Red brake warning light goes on. (May also indicate brake fluid loss.)*
- * Squealing sounds are heard when driving or when pressing on the brake pedal.*
- * Pedal pulses are felt (feels as if you were pressing, then releasing).*
- * Pedal drops away under foot as you break.*
- * Pedal is lower than normal.*
- * Pedal is difficult to depress.*
- * Pedal "grabs" under normal pressure, as if you have stomped on it.*
- * Pedal feels spongy rather than firm. (May also indicate loss of brake fluid.)*
- * After pedal is released, brakes continue to respond as if foot were still pressed down. (Parking brake may be on or jammed.)*

Catalytic converter, muffler, and exhaust pipes

Auto emission control systems are regulated by state and federal anti-pollution laws, and a defective or clogged converter will probably not pass inspection. Most are covered by manufacturers' warranties and are designed to last for at least five years or 50,000 miles (80,000 km). Have all parts checked for loose connections and corrosion.

Clutch pedal clearance or free-play

Clutch adjustment can delay expensive replacement of the clutch and pressure plate. Use a 12-inch ruler to measure how far the clutch pedal is from the floor. Then, depress the clutch pedal until you feel resistance and measure again from that point. The difference should be between 7/8 and one inch. If the difference is greater than one inch, then have your mechanic adjust the clutch.

Engine belts

There are probably a number of different belts in your car engine. These may include belts for the air pump, the cooler, the starter, and power steering. Loose, worn, or frayed belts can cause trouble for your engine. Also, to see if a belt needs replacement or adjustment, check the belt tension. Lightly press your thumb against the belt midway along the longest length. If you can press down more than a 1/2 inch, the belt should be adjusted or replaced.

Lights

For the sake of safety and compliance with the law, all exterior lights should be functional. These include headlights, taillights, flashers, and turn signals.

In addition, you should periodically check to see that your headlights are properly focused and aligned. Poorly adjusted headlights may shine in other drivers' eyes and may give you much less visibility at night. Have your lights checked and adjusted as necessary during the regular maintenance check.

Manual transmission oil

Failure to lubricate manual transmission parts regularly can result in hard shifting, worn gears and bearings, and failure of the clutch to engage. Over time, manual transmission oil may become contaminated.

Muffler and tail pipe

Visually inspect your muffler and tail pipe for leaks and corrosion.

Check for looseness as well as cracks and holes in the connecting pipe. You will hear a roar if there's a big problem, a rumble, buzz, or hiss if there's a small problem. Check the color of the tail pipe. If the tail pipe is black or sooty rather than light gray or white, the carburetor probably needs adjustment. While checking your tail pipe, be careful not to inhale exhaust.

Oil

A car engine uses up oil at a rate of about one quart per 1,000 miles (1 liter per 1600 km). If you don't have enough oil in your car, the engine won't be properly lubricated. Oil also contains rust inhibitors, corrosion inhibitors, and other additives that inhibit the buildup of gummy deposits and thus improves gas mileage. Check your oil every time you fill up.

If you use certain synthetic, refined, or recycled oils you could void your engine's warranty. Always follow the car manufacturer's recommendation when selecting motor oil, and try to stick to the same brand. Most newer cars need oil graded SF or SG (determined by the American Petroleum Institute [API] and based on qualities of additives). Oil is also ranked by viscosity (thickness or weight), determined by the Society of Automotive Engineers [SAE].

A diesel engine will need a CC or CD-grade oil, but for gasoline engines you should use SF-grade oil. In new engines, you should never use lower-grade oil; check your owner's manual for recommendations. The correct viscosity for your car is determined by the temperature you're driving in and complicated by the fact that you need a thin oil for cold starts and a thicker one for high-speed driving. If the oil is too thick, it won't squeeze between the parts at all. If it is too thin, it will simply run between the parts without lubricating them. Thicker oils have higher viscosity numbers (such as 40) and thinner oils have lower numbers, often followed by a W (such as 10W) to indicate suitability for winter-weather driving. The best solution is a multiple viscosity oil that covers a variety of situations.

A change in seasons might call for a change in viscosity. If you need to add

oil more than once a month, you may have an oil leak or may be using oil that has too low a viscosity. You may need to change the oil more frequently if you do a lot of stop-start driving, haul heavy loads, drive often at high speeds or on dusty roads, or if your car is very new or very old. Check your manual or with the car dealer for the best oil for your car.

Oil filter

Regularly changing your oil and oil filter prolongs engine life and performance. The filter traps dirt, metal filings, and sludge, so only clean oil will circulate in the engine. The oil filter should be changed when the oil is changed.

Power steering fluid

A low level of power steering fluid can cause hard steering or erratic steering on turns. Use your owner's manual to find the power steering pump. Unscrew the cap to make sure the fluid is up to the fill mark on the dipstick. Power steering fluid should last quite a while. If the level of the fluid drops suddenly, get it checked out right away.

Radiator cap and hoses

Make sure that the radiator cap seals tightly. Before checking hoses, wait until the engine is turned off and cool. If they are leaking, bulgy, and soft, or hard and brittle, they need replacing. Also, check the clamps that hold the hoses into place for corrosion.

{ewl uwmf, MVWMF11, home.wmf}

1. radiator
2. radiator cap
3. top radiator hose
4. thermostat
5. water pump
6. fan belt
7. bottom radiator hose

Radiator coolant

Coolant has antifreeze plus additives to prevent accumulation of scale (a flaky film that forms on metal), rust, and other pollutants. Because coolant loses its effectiveness over time, it should be replaced periodically. For most cars, you should use a half-coolant and half-water mixture. To be sure, check your manual. You can add coolant yourself, but be sure to look in your owner's manual for the various safety precautions. Never remove the radiator cap while the car is still hot.

The coolant needs to be changed every two to three years. It is probably best to get changed during a regular maintenance check.

Radiator grill

Leaves, insects, and debris that get caught in the fins of the radiator grill can interfere with the cooling system. Remove large pieces by hand and use a small brush or hose spray to get rid of smaller ones.

Spark plugs

Worn, dirty, or misfiring spark plugs, and cracked and worn wires can severely reduce engine efficiency, increase the chances of a breakdown, cause excessive fuel consumption and pollution, and cause the catalytic converter (which is part of the emission system) to overheat. The spark plugs should generally be replaced every two years. In some cars, the spark plugs are easier to change than in others. Check your owner's manual for details.

Springs, shock absorbers, and mounting bolts

If shocks are worn, stress is put on the chassis, steering is hard to control (the car may go off to the side or the steering wheel may have too much play), and tire wear increases. You can press the car at the front end, bounce it a few times, and then let go. If the car continues to bounce more than one time, your shock absorbers should be checked. This is also true if there is any difference between the way the two front or two rear corners bounce. Shocks should always be replaced in pairs.

Tires

Visually inspect the tires for lumps and bulges, uneven or excessive wear, nails, cuts, and other damage. Lumps and bulges may mean that layers of the tire are separating; have a mechanic examine your tire. Uneven or excessive wear may mean that realignment, replacement, or repair is necessary or that pressure is uneven. Sharp objects must be removed and all punctures repaired. Cars and light trucks are equipped either with inexpensive bias-ply tires or with better-quality bias-belted. Some vehicles come equipped with top-quality radial tires, which are more puncture-resistant, grip the road better, and are more reliable. To economize, consider quality retreads; modern bonding techniques make them safe and reliable.

The tire is marked with a series of letters and numbers that indicate its size and purpose. The letter P indicates that the tire is for use on a passenger car. The next three numbers measure the width of the tire in millimeters at its widest point. The next two numbers describe the ratio between the tire height and width. The letter K indicates that the tire is a radial tire. The next two numbers indicate the diameter of the wheel in inches.

Generally, an old tire is replaced with a new tire that is exactly the same size. If you are changing all four tires at once, you may make a change in size; consult with your tire dealer. Temperature rating (resistance to heat) and traction rating (ability to stop on wet pavement) are indicated by an A, B or C. The highest rating is an A.

Tread wear is shown as a number such as 200 or 300. A higher tread-wear number means that the tire will last longer but will also give a harder ride.

Speed ratings may be available on high-performance tires. The letter S means that the tire can handle a top speed of 112 mph (181 km/h), H means it can handle up to 30 mph (48 km/h), V means it can handle up to 149 mph (240 km/h); and Z means that it can handle speeds over 149 mph (240 km/h).

For a free tire ratings grading report, you can call the U.S. Auto Safety Hot Line, (202) 366-0123. (In Canada, call the Canadian Automobile Association office in your area.)

Tires, pressure

If a tire is not properly inflated, your car may be more difficult to steer, it may wander to one side, or the tires may vibrate. Also, low pressure reduces fuel mileage and increases tire wear, whereas excessive pressure can reduce your ability to stop safely and quickly. Proper tire pressure is listed in the owner's manual and can be easily and accurately checked with a well-made tire pressure gauge. Tire pressure should be checked when the tires are cool. Unscrew the safety valve cap, press the bulb at the stem of the gauge firmly into place, and hold it for a second until the calibrated rod pops out. The number on the rod reflects the tire's air pressure. If you have just driven more than a few minutes, the pressure readings will be slightly higher. If all tires lose or gain pressure evenly, it is probably because of weather conditions, but if any one tire loses several psi in a month then it should be checked. Because of their construction, radial tires will often look slightly underinflated even when they're not.

Tires, rotating

To distribute wear evenly, have your tires rotated. This procedure makes tires last longer and also helps maintain proper wheel balance and alignment. The spare can be included in the rotation on cars with conventional spare tires.

Tires, treads

It is important to check for tread wear on your tires. Uneven tread wear can indicate uneven pressure, unbalanced tires, or a serious wheel alignment problem. It can also indicate a brake shoe, suspension, or steering mechanism problem. A good mechanic can determine patterns of tread wear and tell you whether your tires need realignment and balancing. Most modern tires have wear detectors built into the tread design. If your tires do not have this feature, an old trick is to insert a penny upside down into two adjacent tread grooves. If the treads do not cover any portion of Lincoln's head, they are worn too low. It is more accurate, however, to use a tread-wear gauge.

Here are a number of signs of tire wear, and possible causes:

- * Wear in middle of tread - Tire is routinely overinflated, or tire is too wide for rim.
- * Wear along outer edges of tread - Tire is routinely underinflated.
- * Edges of tread ribs sharp on one side, but rounded on the other side - Wheel camber or toe-in setting incorrect.
- * Wear on one side of tread - Incorrect alignment.
- * Patches of wear (random) - Tire is not balanced, or wheel rim is bent.
- * Patches of wear (circular) - Faulty shock absorbers or other worn suspension parts
- * Alternate ribs worn (on radial tires only) - May be normal, or may be caused by tires too wide for wheel rims.

Wheel balancing

Balancing the wheels involves adding small weights to the edge of the wheel. If the wheels are not properly balanced then the car may shake. If a seat vibrates, then the rear wheels are probably imbalanced; if the steering wheel does, then the problem is usually in the front wheels. To check for misalignment, you can briefly let go of your steering wheel while driving to see if your car consistently drifts to one side. One simple thing you can do to prevent uneven tread is to periodically clean debris from the tires.

Window washing fluid

Using a cleaning solvent that contains antifreeze, clean the bottom of the washer reservoir if you see accumulated dirt there. When you work the spray, make sure the nozzle and hoses are clean. You can poke a thin piece of wire into the nozzle if it seems clogged. The spray should be adjusted so that it hits the center of the windshield.

Windshield wiper blades

Worn, dirty windshield wiper blades will not clean the windshield properly. The blades should be smooth and the cleaning edges should lie flush against the glass. Check the edges of the rubber blades for cracks, nicks, warping, and dirt. Both road dirt and the action of running blades over ice or packed snow will damage them, so keep the windshield clean. Replace the blades if they leave a streak on the windshield.

Windshield wipers

To keep the windshield wipers working smoothly, just apply a silicone spray.

Blanket

If you are going to be driving in cold weather, it's a good idea to have a blanket to keep you warm in case your car breaks down.

Cat-box filler or sand

To help provide traction on ice and snow, keep a bag of cat-box filler or sand in the trunk during the winter. Make sure the sand is kept dry or it will freeze and be of no use.

Chains

Even if you have good winter tires, chains are sometimes still needed for driving in heavy snow. If you are driving to a ski hill, it is a good idea to carry chains.

Duct tape

A roll of duct tape in the trunk can be handy for emergency hose repairs.

Fan belt

You should consider carrying a spare fan belt because many tow trucks do not carry them.

Fire extinguisher

A fire extinguisher could save lives. If the fire is near the fuel tank, however, it is too dangerous to put out with a fire extinguisher--just quickly get away from the car.

First-aid kit

A first-aid kit should contain at least scissors, gauze, bandages, and alcohol wipes.

Flares

Local laws frequently have restrictions on the use of flares on highways, so you may be better off carrying a flashlight with a red blinker. Also consider carrying roadside reflectors. In a pinch, a waxed milk carton will burn for about 15 minutes, acting as a temporary flare. Turning on the interior lights in your car can also help.

Flashlight

At the least, you should have a flashlight and spare batteries in your car. Or consider getting an electric lantern. If you get an electric lantern, it should have a hook that lets you attach them to the inside of the hood; if your car breaks down at night, this kind of lantern will be invaluable.

Fluids

Always carry some engine oil, coolant, and water (for the radiator) in the

trunk. But if you maintain your car, it is unlikely that you'll suddenly run low on any of these fluids.

Jack

Ideally, you should use the jack that came with your car. But if you need to buy one, a hydraulic jack is a good value. Make sure that the one you buy fits your car's bumper. A jack is basically used only for changing a tire; never crawl under a car that is supported by only a jack.

{ewl uwmf, MVWWMF11, home.wmf}

- 1. hydraulic jack*
- 2. tripod jack*
- 3. scissor jack*

Lug wrench

To remove lug nuts when changing a tire, carry a cross-shaft lug wrench. A cross-shaft lug wrench is preferable to a single shaft one because it makes it easier to use your body weight to loosen the nuts. Remember to always remove nuts in a crisscrossing pattern.

{ewl uwmf, MVWWMF11, home.wmf}

- 1. single shaft lug wrench*
- 2. cross shaft lug wrench*

Silicone spray lube

In cold weather, silicone spray lube may come in handy for unsticking frozen locks and hinges, among other things.

Spare tire

Never drive your car without a spare tire, and check it periodically to make sure that the tire is functional. Also check that you have the tools that you'll need to change a tire. These tools should include at least a wrench to loosen and retighten the wheel nuts.

Tool kit

A couple of screwdrivers, a hammer, a wrench, and pliers could help you with a breakdown. If you can do minor repairs, extra valve caps and hose clamps could also prove useful.

Windshield Cover

A windshield cover serves two purposes. The decorative side can be used to keep the inside of a parked car cooler on a sunny day. The opposite side of the cover should say something like "Please call for help" and is invaluable if your car breaks down.

General contractors

The general contractor is a professional builder or remodeler in charge of a construction job. The contractor coordinates the work of roofing, heating, plumbing, electrical, and other subcontractors. The contractor also works closely with craftspeople, suppliers, local building inspectors, and whomever else is necessary to get the job done.

If you are using an architect, you may decide to establish the architect as the general contractor's supervisor. Although it is unlikely that the architect will be very involved in the day-to-day progress of the job, you may find it helpful if he or she plays a supervisory role.

If you are working with a design/build firm, this coordination is handled by the firm. Using such a firm may limit your range of options in some areas (e.g., you may not have quite the number of choices for cabinetry or hardware), and there is no system of checks and balances (such as when the architect recommends something, but the contractor says it's costly). You may want to do some comparison shopping on your own to compare the estimates from the design/build firm with the ones you get elsewhere.

Before calling in a contractor

If your plans include expanding your house, your title insurance and the zoning regulations in your community should be reviewed. Draw some sketches of what you have in mind. The more specific you can be, the more efficiently your designer and contractor can work with you and set a budget.

In deciding what you are willing to spend, consider this general guideline: if you put in improvements that cost 15% more than the value of the costliest house in the neighborhood, you may never recover your investment. But if you plan to stay in the same house for a while, and will enjoy having it exactly as you want it, you may decide to invest the money anyway.

Finding a contractor

To get prospects for the contracting job, ask around for referrals and also consider the recommendations of your architect or designer. You can check with a local contracting supplier for suggestions, or you can also use a referral agency (which may charge a fee). If using an agency, establish that it requires all its referrals to be licensed, bonded, and insured, and ask what procedures it follows in the event of disputes or complaints.

It is best that your contractors be easy to communicate with and that they can work well with your architect. Because the job may be long term and costly, it is best if you feel good about who you are working with at the outset.

Try to find three viable candidates. Viable firms are those who are willing to work with your architect's plans (or can provide architect services, if that's what you want), who have a record showing the requisite level of experience

(which is some guarantee of stability), who can provide references, whose schedules are such that they are available to do the work when you want it done, and who have satisfactory answers to your initial questions.

Before you solicit a bid, phone the local Better Business Bureau to see whether any complaints have been filed against the prospective contractor, and make sure that the contractor is licensed or registered if your state requires it. If complaints have been filed, ask your contractor about them and investigate further if you're not satisfied with the answer.

Checking out the candidates

Call the National Association of Home Builders Remodelers' Council (NAHB/NRC) at (800) 368-5242 or the National Association of the Remodeling Industry (NARI) at (800) 966 7601, the local Better Business Bureau, and the department of consumer affairs, and ask all three whether or not there are any complaints against your prospective contractor. If there are complaints, ask your prospective contractor about them and investigate further if not satisfied with the contractor's answer.

Interviewing a general contractor

** Ask whether or not the contractor is licensed. To be licensed in some states, one only has to pay a fee; other states require passing a test. And while some states do not act on complaints against a contractor, other states may suspend or revoke a license, so it is worth checking on the status of the candidate's license to see whether or not there are any blemishes against it. See "Checking out the candidates," earlier.*

** Ask whether or not the contractor has worker's compensation and liability insurance. If not, find another contractor. As additional insurance to you, the contractor may be bonded, a condition that may be imposed by the local authorities. Bonding is a kind of job insurance: if the job is not finished, the bond is forfeited to you.*

** Ask about professional affiliations. Although membership in either the NAHB/NRC or NARI or a similar organization is not a guarantee that the contractor is first rate, it does give some assurance of professionalism. If the contractor is a member, you may also have an opportunity to see whether or not there are any complaints registered against the contractor. Another benefit is that in the event of a dispute, the organization may have a program for arbitration. If your contractor is a member, ask whether or not he or she will abide by the organization's arbitration procedures if necessary.*

** Ask whether or not the contractor can get you a payment and completion bond. A surety bond, which may be required by law, pays off subcontractors and suppliers in the event your contractor fails to do so, but these may have a very small payout. If the job is costly, you should consider buying a payment and completion bond to cover any expenses incurred by the contractor's failure to complete the job. Although you will pay for it yourself,*

insurance companies will provide such bonds only to contractors who are good credit risks.

** Ask about warranties. A contracting warranty should run for at least 1 year for all materials and labor (5 years for a roofing contractor). But if the contractor goes out of business before the warranty expires, the warranty may be unenforceable. However, you may have some recourse if you have gotten the manufacturer's warranty for the materials, so be sure to get these warranties as well as bills of sale from the contractor before the job is done. Some roofing materials may be warrantied for as long as 50 years. Also, ask your contractor or insurer about the possibility of purchasing warranty insurance.*

** Ask whether the work will be done solely by the contractor's own crew or whether subcontractors will be used. The use of subcontractors can be a plus for you, because more complicated jobs can require more specialized skills.*

** Ask who the contractor will be using as suppliers.*

** Ask about anything else you can think of. Not only will you get the specific information you are looking for, but also in the course of the discussion you will get a better sense of what it will be like to work with the contractor.*

Making your final choice

Call the references and examine the contractor's work (which anyone who willingly gives the reference is usually agreeable to). Ideally, examine three work sites for each of the three contractors.

Call your state department of consumer affairs to make sure that the contractor's license is valid, current, and for the proper specialty.

Call the suppliers; they can tell you whether or not the contractor's credit history is solid and may provide other information that can help you assess the contractor.

Call the contractor's insurer to determine their worker's compensation and liability insurance are in force.

Compare the bids. Keep in mind that an estimate is a speculative number, while a bid is a written and specific document. Make sure that everything is written down in as much detail as possible. For example the estimate should not refer simply to paint color but also to the brand, color number, number of coats, specifications about the trim (if different), and anything else that could affect the price. The more specific the estimate, the less chance there will be for misunderstandings and surprises later. Moreover, it is easier to compare estimates when you can compare what is being offered point by point.

Once you've considered the various factors, and feel confident about the information that you have, go with your instinct about whom you would most like to work with.

Drawing up the contract

Once you have officially chosen the contractor, there should be an initial meeting to review the bid and make sure you understand it, to go over sketches and blueprints, and to discuss anything else you think will be important for the job. If there will be dramatic structural changes, you should have the contractor draw at least a rough sketch of the changes.

Make sure that every detail has been incorporated into the contract and that there are no blank spaces. If the contractor does not have a form, you should be able to purchase a blank one and adapt it accordingly. This extra effort before the job starts can save you a lot of time and trouble later on.

In some states, if you change your mind after signing the contract, you may be entitled to cancel it within 3 days.

Review the contract on the following points, in writing:

- * Names and addresses of both parties (make sure the contractor's address is valid).*
- * Address of the job site.*
- * Drawings, blueprints, and other visuals.*
- * Model numbers, colors, and other specifics about all items to be ordered.*
- * All promises and assertions from the contractor.*
- * Starting and completion dates.*
- * Stipulations for work hours and days.*
- * Payment schedule.*
- * Details of insurance, payment, and performance bonds.*
- * Late completion penalties connected to a "time is of the essence" provision that penalizes failure to substantially complete the job by a certain date.*
- * Provisions for changing costs and completion dates if you execute change orders (which are actually short, additional contracts) on any of the work or materials.*
- * Provision for you to inspect and supervise the work as it goes along.*
- * Contractor's obligations concerning daily cleanups, final cleanup, and disposal of all wastes.*
- * Statement that the contractor is responsible for getting permits and approvals and will comply with all obligatory regulations and inspections.*
- * Waivers of mechanics' liens (which protect you from being sued by a supplier or subcontractor whom the contractor fails to pay).*
- * Provision for settling disputes through arbitration and for termination of the job if you are dissatisfied.*
- * Any information regarding work that you expect to do yourself or hire someone else to do or appliances or other items that you will be purchasing yourself.*

Making the payments

To keep project costs under control, you may choose to hire (or if you have

financing for the job, you may be offered by your lender) a joint control company that oversees funds paid to everyone.

It is to your advantage for the initial payments to be as small as possible. This would mean that your final payment would be larger. The final payment should only be made after the job has been completed, inspections by owner and authorities have been done, and the period during which notices of mechanics' liens may be filed has expired.

While the work progresses

Keep your temper even when things seem chaotic and you are frustrated by delays, errors, and the like. In case of disputes, you can refer to the contract, or if the contractor is a member of NAHB/NRC or NARI, you may be able to get them to help you work out the problem.

Keep an eye on what's going on. Observe who the workers are and what they are doing, and make sure the work is on schedule and in compliance with the contract.

Ideally, your contract should obligate you to pay only when a job is completed rather than by date. It should also not obligate you to pay until you have received lien releases from subcontractors and suppliers for all goods and services provided.

Check that all deliveries have been made and services performed by confirming with subcontractors and suppliers.

Carefully manage your paperwork, especially bills and receipts. Keep your files in order, and preserve records of government inspection. You might want to avoid signing for deliveries because you are not as well equipped as the contractor to check that the delivered goods are in satisfactory condition.

Use other experts to stay on top of things. Your architect's contract should stipulate that he or she will regularly inspect for quality and compliance. Engineers can be hired to inspect major heating and cooling, electrical, and plumbing installations and can help you judge whether or not things are in compliance with the rules of the municipality.

Because countertops in kitchens and baths are subjected to different kinds of uses, what's best suited to one room may not be ideal for the other. Marble, granite, and tile are better suited to the bathroom because they are less likely to be exposed to stains or damage. Laminate is a less luxurious but very practical choice for either situation.

Butcher block

A butcher block consists of 1/16-inch layers of hard maple or oak that is kiln-dried and bonded together to a thickness of 1½ inches. It is durable and quite resistant to heat, although it may scorch. You can cut directly on the surface, and any minor surface damage is easy to remove simply by sanding. The wood, however, is porous, and water may stain or darken it; the butcher block should be sealed periodically and requires a lot of maintenance to stay clean-looking. Aside from cosmetic imperfections, it is resilient and should last a lifetime.

Ceramic tiles

Ceramic tiles are made from clay fired at high temperatures and may be glazed or unglazed. The tiles are durable and heat-resistant and can withstand direct cuts and, in some cases, may even be installed over existing countertops. The biggest drawback is the grout, which is difficult to keep clean. The grout must be resealed frequently to keep staining to a minimum, and regrouting may be necessary as often as every 5 years.

Color-through laminate

Color-through laminate, under a variety of brand names (such as Corian®), is similar to plastic laminate, but all the layers are imprinted with color so that no dark edge is ever visible and many decorative treatments are possible. It is durable, fairly stain-resistant and heat-resistant, nonporous, and available in many colors, although patterns and designs are limited. Problems include cuts and nicks, although they are not as dramatic as with regular laminate and resurfacing may be possible. Even though color-through laminate is expensive, it should last a lifetime.

Marble and granite

Although very expensive, marble and granite are heat-resistant and generally durable. Oil may stain granite, however, and it may be scratched. Marble may stain or chip, even when sealed.

Plastic laminate

Plastic laminate, the most commonly used countertop material, is a hard, thin (usually 1/16 inch) material from 2 to 5 feet wide and up to 16 feet long. It is made of layers of resin-impregnated paper fused together under heat and pressure and then bonded to ¾-inch particle board or a similar substance. Only the top layer is printed with color, and the interior has a brownish core. Such countertops are durable, fairly stain-resistant, available in many colors,

textures, and patterns, and bendable. Cuts and nicks show, so you need a cutting board. Scorching is possible, and bonding can fail so that the edges peel back from the core.

Plastic laminate lasts about 12 to 15 years. It can be bought either postformed or edge-glued. In the former case, the base is covered with the laminate and delivered ready to be screwed in place. There are no seams and the backsplashes are usually higher. Postformed countertops are available in a limited amount of colors and in lengths only up to 12 feet. Edge-glued countertops are built on the spot. (The carpenter covers the laminate with a contact cement.) You can see the seams, but edge-glued laminate material is harder and available in more colors and longer lengths than postformed countertops.

- {ewl uwmf, MVWMF11, home.wmf} 1. post formed*
- 2. edge glued*
- 3. plastic surface*
- 4. wood surface*

Design professionals

Getting a good design professional can be money well spent. In addition to getting attractive results, you can save yourself a great deal of time, hassle, and even money, because the job will be done properly.

There are a variety of ways to pay for design help. You can pay an hourly fee, a fixed fee, a fee based on the percentage of total construction, or, in the case of a designer, a cost-plus fee (you pay the wholesale price of goods purchased, plus a commission). A wide variety of design help is available.

An architect holds a degree in architecture and is licensed by the state. Most are also certified by the American Institute of Architects (or AIA). They are familiar with construction, know building codes, and can design and supervise the building or renovation of structures.

A designer (e.g., a kitchen designer) may hold a degree in architecture and design but is not licensed and is not permitted to design the structural part of a building. Designers may either draw up a plan that is approved and stamped by an architect or structural engineer or work in conjunction with an architect who will do the plans for the structural portion of a design.

An interior designer not only designs but also sells whatever is used in the decoration of your home. One who is certified by the American Society of Interior Designers (for information call (800) 775-ASID) should have enough expertise in working with contractors even on extensive remodeling.

A decorator is not required to have formal training.

Finding design help

When choosing help in designing or renovating your home, bear in mind that your relationship will extend over a long period of time--most jobs take from 6 months to 2 years--and involve large sums of money. Finding someone with whom you can easily work is probably just as important as finding someone whose artistic style you like. Don't hire someone who makes you feel uncomfortable or inhibited about expressing your personal preferences or budgetary limits.

When you are looking for design help, one obvious way to start is to ask for recommendations from friends. Or you may see a home you like and seek out the designer. Scanning decorating magazines or visiting a designer showcase may also lead you to a designer you admire. Some department stores offer decorating services if you buy your furniture from them. You can also contact the American Society of Interior Designers at (800) 775-ASID, or look in your local phone book.

Another option is to contact a designer referral service. These organizations act as matchmakers between clients and interior designers. They build a roster of designers by interviewing applicants and their former clients, visiting finished projects, running credit checks, and clearing the designer

with the Better Business Bureau and the appropriate licensing organizations. During an initial meeting, the service will ask about your project, your budget, and your tastes. The service may charge you a fee to match you with one of their designers, but they will assume no liability for the designer's work.

Before you solicit a bid, phone the local Better Business Bureau to see if any complaints have been filed against the prospective designer, and make sure that the designer is licensed or registered if your state requires such. If complaints have been filed, ask your designer about them and investigate further if you're not satisfied with the answer.

Interviewing a designer

** Ask how the designer's fee will be established. It is generally your choice to pay either on a cost-plus basis (you pay for items you purchase plus a set commission) or by the hour. Select the option that best suits you. If you prefer to mull over your decisions for a long time, you're better off with the cost-plus arrangement than with paying for significant amounts of shopping time. Also, if you plan to do your work in stages, you may look for a designer who will not charge an up-front design fee but will make some arrangement to charge as you go along.*

** Ask to see the designer's portfolio. While looking through the portfolio, though, don't expect to see the room of your dreams. Also, bear in mind that each of the jobs (whether you like them or not) reflects a combination of the tastes of the designer and the client. If many of the completed jobs look very much alike, that may be a signal that the designer is working by a formula rather than attempting to work with the tastes of individual clients. A new designer will not have much to show, so you should feel free to ask many questions.*

** Do not be afraid to ask about price. When you see something you like in a portfolio, ask what it costs. This will help you determine whether or not the budget you have in mind for the look you want is realistic. You will also get a sense of how the designer feels about spending other people's money.*

** Ask what part of the job the designer most enjoys getting involved in. This is yet another way to get a sense of what the decorator is like and what it will be like to work together.*

** State your budget, and ask whether or not the designer has time for this job (which is another way of asking, "Is this job too small?"). It is best to be straightforward--do not be afraid of sounding cheap, but do not give a figure lower than you can really afford in the hope that you will keep costs down. At the same time, do not be talked into doing a bigger project than you have in mind. If you want only to do the kitchen at this time, say so, and don't be bullied.*

** Ask whether or not the designer can be flexible. You may not wish to buy*

everything at the same time, and you probably should not. Decorating is a process; your tastes evolve over years of living with the furnishings and of discovering your own needs. Also ask whether or not the designer will work with the furnishings that you already have.

** Find out how involved you will be in the shopping process. Some designers go with their clients into shops and showrooms, whereas others will bring you samples. Which method you choose is a matter of personal preference; neither method is intrinsically better.*

** Tell the designer if there are craftspeople who you prefer to work with. The designer will undoubtedly also have some recommendations, and you need to know how flexible he or she will be about working with your choices.*

** Ask for an estimate on completion dates. If you are redecorating in preparation for a special gathering in your house on a particular date, say so. But be realistic--when you are custom-ordering furniture or doing extensive structural work, the final control is in the hands of the manufacturers and workers. Virtually anyone who has ever embarked on a decorating project can tell you stories of extensive delays because they are the rule rather than the exception.*

Making your final choice

After your preliminary talks, review the ballpark budget number. In the course of discussion, you may have expanded or changed your plans in a way that will significantly affect the costs. If the project has become a lot more costly than you had originally intended, you should know as quickly as possible.

Call the references. Ask them what they liked best and least about working with the designer. Even someone who is highly recommended may have weak areas. If you are aware of these areas, you may be able to anticipate potential problems.

Before you hire the designer, have him or her visit your house or apartment. Although it seems incredible, some people skip this step.

Drawing up the contract

You will need a written contract to spell out the nature of the work to be done and the payment schedule. Will you have to pay for initial plans? When will the plans be delivered? Suppose you don't like them? Is there any cutoff point in the process when you can cancel your agreement? Give yourself some leeway so that if you can find and buy furniture yourself, you don't have to pay for what is specified in the plan. Try to spread out the payments because holding back money gives you more negotiating power.

While the work progresses

Try to come to terms with your spouse on decorating issues before you start. The most difficult situations arise when the designer has one point of view

and you and your spouse have two others.

Right from the start, always pay attention close attention when you are being shown plans. Never assume anything. If something appears to be missing, point it out. If something looks very different from what you expected, bring it up. Question anything you do not understand. The terms involved in design and renovation are unique and so extensive that you may feel that you are dealing in a second language. Still, do not gloss over or ignore anything. You may be approving something that you actually do not want, and it may be expensive.

Cut costs when you can. The designer offers you buying advice as well as entrance to showrooms that may not be available to the general public. Although this gives you the opportunity to buy some items that may be unique or unusual, be aware that the furniture in these showrooms is not usually bargain-priced. And although you are charged wholesale prices for the furniture and other items that you see such as window treatments, once you add the designer's commission, the total cost may equal or exceed normal retail prices for similar merchandise. If you live in a major city or have access to showrooms where you can buy home furnishings at a discount, you may be better off doing the buying yourself. Make sure that your contract gives you the right to do so.

Use the designer's creative imagination. If you plan to put up tiles on a wall, draw your own design but also ask for the designer's suggestion. If you have a storage problem, solicit a solution. If you are living in a home or apartment with a floor plan that may be the same as that of others, it is also practical to visit their homes to see if they have come up with innovative ways of working with the same space.

Do not expect the designer to cover all the bases. You, too, have to spend a considerable amount of time thinking about your project. If you have ordered a built-in unit that will cover access to the electrical outlets, do not assume that the decorator will figure out a way to make them accessible. Raise the problem and ask for a solution. If you have an air conditioning unit that blocks the window during part of the year; do not assume that your designer's window treatment will inevitably take this into account. Although it would be nice to think that you could turn over all the practical planning to someone else, you can't. The designer may not anticipate your wishes and needs and may simply forget to consider some of the many details that are involved.

Trust your instincts and assert yourself. You can ask the designer's opinion about whether or not a particular pattern will look good when it is covering 12 feet of sofa, or what kind of countertop will be least likely to stain. At the end of the job, however, the designer will walk away and you will be the one living with the results. Don't ever lose sight of the fact that it's your money and your home. You have the final say.

Finding an electrician or electrical contractor

The best way to find a service provider is always by a personal recommendation, and locating an electrician is no exception. If you are doing a large construction or renovation job and are working with an architect, he or she may have someone in mind, or your general contractor may subcontract with (and pay) the electrical contractor. If the job is not extensive or you are on your own, try first to get a personal recommendation. Without a recommendation, however, you can contact a local hardware store or an electrical supply center for suggestions or a professional association or union for a reference (your local library can help you with this). The classified ads in your local paper also might be of help. For whomever you find, though, be sure to get references.

Checking out the candidates

It is critical to find an electrician or contractor who has experience with the kind of job you have in mind. It is particularly important to get someone experienced if your job involves remodeling rather than construction, because it is much harder to run wires within existing walls than it is to work on one where you are starting from scratch.

Try to locate at least three real candidates (i.e., people who are qualified and are available to work when you want the job done) and, if possible, examine work they have done in the past to see how it looks.

In most states, electricians must pass a test to be licensed; many municipalities also require a local license as well. Check on the regulations for your area to be sure.

In addition, a contractor must have liability insurance and worker's compensation. If services are upgraded or installed, the electrical contractor may have to post a compliance bond--protection against damage to the city facilities. Electrical work must pass inspection before the compliance bond is returned and before the walls can be closed up.

Before you solicit a bid, phone the local Better Business Bureau to see if any complaints have been filed against them, and make sure that the electrical contractor is licensed or registered if your state requires such. If complaints have been filed, ask your prospective electrician about them and investigate further if you're not satisfied with the answer.

Getting a bid

Ideally, you should get bids from three people. The bids should always be based on identical specifications. Describe exactly the number of electrical outlets you want and so forth so that the numbers submitted to you are truly comparable. The bid should be in writing and spell out exactly what work is to be done including each outlet, switch, and light. Building codes usually have very particular specifications about location and number of outlets, and electrical contractors' charges are figured per opening (receptacles,

switches, and lights, because they penetrate the wall, are all considered openings) and on home runs, wires that lead to the power panels.

The clearer and more detailed the bid, the less disappointments and haggling you face in the future.

Problem areas

It is to your benefit to double-check a few standard conventions. Make sure all outlet boxes are installed evenly and that ceiling fixtures are not off center. If the outlet boxes are plastic instead of metal, they must be grounded individually. There should be separate circuits for the refrigerator, the dishwasher, and a heavy air conditioner (and this may be regulated by law). Each area of the house should also have its own break.

General information

For general information on home electrical systems, see "Home Electrical Systems" under "Home Maintenance."

Acetate

Acetate fabrics include Chromspun® and Estron®. To clean, either dry-clean or, if the label says "Hand-Washable," use warm water and gentle detergent. To dry, hang on the line away from heat or sun. Iron on a cool setting while still damp.

Acrylic

Acrylic fabrics include Acrilan® and Orlon®. To clean, either hand-wash, dry-clean, or machine-wash at the setting indicated on the care label. To avoid pilling, turn the garment inside-out before washing. Prewash spray will remove oily stains, and heavy-duty detergent should remove others. Machine-dry on a low setting, and iron on a moderate setting.

Cotton

Cotton fabrics include denim, corduroy, and sheeting. To clean, machine-wash at the setting indicated on the care label and use heavy-duty detergent. Be aware that frequent bleaching may eventually damage the fibers. Machine-dry according to the care label, and iron on a hot setting; use spray starch if needed.

Linen

To clean linen, either machine-wash at the setting indicated on the care label or dry-clean. Machine-dry according to the care label, and iron on a hot setting while the garment is still damp.

Modacrylic

To clean modacrylic, machine-wash on a gentle setting with heavy-duty detergent. Machine-dry on low, and iron on a cool setting.

Nylon

Nylon fabrics include Antron® and Cantreze®. To clean, machine-wash or hand-wash with warm water and heavy-duty detergent. Machine-dry on low or hang to dry, and iron on a cool setting.

Olefin

Olefin is a material primarily used as a filling. To clean, machine-wash in warm water with regular detergent. Dry on the lowest setting. Do not iron.

Polyester

Polyester fabrics include Dacron®, Fortrel®, and Trevira®. To clean, either machine-wash on warm with regular detergent or dry-clean. Rub all-purpose detergent or prewash spray on oily stains. Machine-dry on low or air-dry, and iron on low setting.

Rayon

Rayon fabrics include Zantrel®. To clean, either wash by hand with lukewarm water and gentle detergent, or dry-clean. If the care label says "Machine-Washable," use gentle detergent and warm water on the gentle cycle. Dry on a hanger, and iron on medium while the fabric is still damp.

Silk

To clean silk, either dry-clean or machine- or hand-wash according to the care label. If machine-washing, first test for colorfastness. If hand-washing, use a protein hair shampoo and gently handle the item. Dry on a hanger, and iron on low setting.

Spandex

Spandex fabrics include Lycra®. To clean, either hand- or machine-wash with warm water and regular detergent. Do not use chlorine bleach. Dry by hanging, or put in the machine on the lowest setting. Iron on the lowest setting while still damp.

Wool

To clean wool, dry-clean unless the care label says "Machine-Washable." If the label just says "Washable," wash by hand, but never in hot water. To dry, lay the item flat on a towel. Iron on moderate or low setting.

Floor covering will probably be your single largest investment. The choices, which at first may seem bewildering, become narrower once you decide how you want the room to look, how much you can spend, and how much maintenance you are prepared to handle. For living, dining, and bedrooms the usual choices are wood plus area rugs or carpeting. Carpeting is soft, warm, and an excellent soundproofers; it comes in a wide variety of prices, textures, and designs and is usually treated to be stain-resistant. However, a dirt or stain problem on a wood floor may be easier to treat or cover, and an area rug is less expensive to replace than soiled wall-to-wall carpeting. But for kitchens and bathrooms, vinyl, marble, or quarry tile may be a better choice because they are hardier.

Area rugs

Area rugs can be woven or tufted and have a variety of textures. They may be made of cotton, as well as of wool and of artificial yarns and are available in a wide range of styles and prices. Hand-knotted "Orientals" come from India, Pakistan, China, Iran, and Turkey, but copies, called "Oriental-type" rugs are made on high-speed Wilton or Axminster looms. Flat-woven rugs are called dhurries, kilims, Navajo-style rugs, or needlepoint rugs. You can buy a custom print, a design area rug, or one that is just a cut-down piece of broadloom. Keep in mind that when wool rugs are in storage, you need to protect them from moths.

Carpeting, indoor-outdoor

Indoor-outdoor carpeting is a type of polypropylene carpeting that comes in a variety of surfaces, from flat to shaggy and grass-like. It's a good choice for areas where the floor is likely to take a lot of abuse, such as in a workshop or garage entry.

Carpeting, wall-to-wall

Wall-to-wall carpeting (also called broadloom, because it is woven on a wide loom) is cut and installed to measure.

Carpet backing can be made in one of three ways. It can be woven onto its backing by either the Wilton or Axminster method; these techniques differ slightly but do not affect the final look. It can be tufted, which means that a high-speed machine stitched big loops of yarn through the backing fabric. Or it can be bonded onto a prewoven backing. In the case of prewoven backing, the backing is usually polypropylene or jute; both materials are strong and durable, but jute is more likely to mildew.

Carpeting fibers include wool, which is expensive but stain-resistant and beautiful, and artificial fibers, such as nylon (of which most carpeting is made), olefin (which is resistant to moisture and mildew), and polyester (which is soft and takes color well but is not very durable). A blend of 80% wool and 20% synthetic is durable and offers the color and sheen of synthetics.

Carpeting style is based on the texture, which is determined by how the loops of yarn are treated. Uncut level loop carpeting is very durable, but if the loops are shallow, it is not very luxurious. In multilevel loop carpeting, the loops are of different heights, which gives the carpeting a sculptured effect. In random shear, some of the loops are cut and some are not. When loops are all packed tightly together and sheared at the top, you get a Saxony plush. If the loops are higher, less densely packed, and sheared at the top, you have a textured plush. And in a frieze, the tufts of yarn are curly rather than straight, giving a textured look. The loops in shag carpeting or rugs are very long.

Durability depends on what type of fiber is used (nylon is the strongest), how dense the pile is, and how the yarn is twisted. You can judge the density by bending a section of the carpet; the more backing you see, the less dense it is. A good twist is indicated by cut ends that are neat and tight.

Sometimes carpeting has a secondary backing, which eliminates the need for padding, but it is usually bought separately. Padding protects the carpeting by giving it more resiliency; it may also give the feel of additional plushness. Foam rubber (backed with jute or paper so it can withstand more wear and so it won't stick to the floor) is the highest quality. Other types of padding include hard-wearing jute, waterproof PVC, and felt substitutes. For more information, write to the Carpet Cushion Council, P.O. Box 546, Riverside, CT 06878.

Matting

Matting, usually made of natural fibers, looks modern and is less expensive than carpeting, but it lacks warmth and does not wear nearly as well. Rush matting, which is available in various designs, can be used without padding and laid on most surfaces, including concrete. Because it tends to collect a lot of dust the surface below it must be swept frequently. Rush matting can be cleaned by scrubbing with detergent.

Split cane matting is similar to rush matting but is more rigid and even less expensive. Coarse coconut matting is the texture of a standard welcome mat. It is very resilient but not particularly comfortable for indoor use. Coir matting is a more refined version of coconut matting and is available in a variety of looks, thicknesses, and colors. Sisal matting is tough and naturally white. Plastic matting is less expensive and brightly colored.

Nonresilient flooring

Durable nonresilient flooring choices include ceramic tile, quarry tile, marble, slate, and stone. Ceramic tiles come in a variety of patterns and colors and may be glazed or unglazed. Unglazed ceramic tiles must be sealed. Quarry tiles are unglazed, rough, and usually in earthy tones. They must be sealed and polished.

Marble tiles are hard-wearing and waterproof but may get dull and stained,

in which case restoring them is a difficult job. Slate and stone are generally used outdoors. Whether sealed or unsealed, these floors can usually be mopped and cleaned with either a water- or solvent-based product, but never use a water-based polish on top of a solvent-based one. Consult a flooring dealer for product advice.

Resilient flooring

Resilient flooring comes in sheets or tiles of various materials. These materials are primarily vinyl, cork (which is not very durable), and rubber (limited in color range but comfortable to stand on).

Solid vinyl tiles are easy to clean, easier to lay than sheet flooring, and less wasteful when the floor is irregularly shaped. When embossed, vinyl looks better but is harder to clean. When it comes as sheets, vinyl and rubber flooring are made in layers. When the filling layer in vinyl is cushioned, it is more comfortable, and when the pattern is integrated into the wear layer (top layer), the flooring is more durable.

Rubber flooring is made of layers of synthetic and natural rubber. Cork should be vacuumed (but never mopped) and rewaxed with a solvent-based product (such as Wood Preen® or Klear®). Both rubber and vinyl can be mopped clean and occasionally shined with a water-based product such as Mop & Glo®. If the wax builds up, you may occasionally need to use a wax stripper.

Wood flooring

Wood flooring is easy to maintain and durable. Although 95% of all wood floors are made of oak, there are also wood floors made of walnut, pecan, ash, elm, chestnut, maple, birch, and yellow pine. Wood flooring is sometimes stained to look darker or bleached or "pickled" to look lighter, and then finished with a protective coating. In residences, floors are generally finished with a penetrating seal finish or a surface finish.

A penetrating seal soaks into the pores of the wood and seals the floor against dirt when it hardens. If color is added to the liquid seal, the effects of wear will show up more slowly than on floors where only the surface is coated. Worn spots are easily touched up. A coat of wax is generally used over the penetrating seal to protect the floor further.

A surface finish forms a moisture-proof film, so it is particularly suitable in a kitchen. Most surface finishes come in a range of possibilities, from a very high-gloss to a low-sheen matte finish. Varnish, shellac, and lacquer surface finishes have given way to more durable modern ones such as polyurethane (tough but tends to yellow) and Swedish finishes (durable and less likely to yellow).

Finding a painter or a wallpaper hanger

The best way to find a service provider is always by a personal recommendation. If you are doing a large construction or renovation job and working with an architect, he or she may have a recommendation, or you can have your general contractor subcontract a painter or wallpaper hanger as part of the job.

If, however, you are on your own or you do not have a personal reference, you may be able to get one from the local hardware or paint store. If you use the local yellow pages or classified ads, be sure to get two or three references from any firm you are considering and phone the local Better Business Bureau to see if any complaints have been filed against them.

If you are doing a special kind of paint job (e.g., spraying kitchen cabinets) or using special wall covering (e.g., foil paper), it is particularly important to make sure that the person you hire is experienced in that kind of work.

Checking out the candidates

Before you solicit a bid, phone the local Better Business Bureau to see if any complaints have been filed against the candidate. If complaints have been filed, ask him or her about them and investigate further if you're not satisfied with the answer.

Getting a bid

A bid, unlike an estimate, should be put in writing and is a firm figure. Ideally, you should get bids from three people. The bids should be based on identical specifications and should be made after the contractor has visited your premises and determined exactly what is required. The specifications should be as detailed as possible.

For example, a bid for a paint job should include the type of paint (oil- or water-based), the quantity, and even the brand; whether the walls and trim will be painted the same or different colors; and how many coats will be required. For light colors, you may need two coats to cover whatever is underneath, and for walls in bad condition you may need a primer. Most painters charge by the square foot plus extras for badly deteriorated walls or ceilings and elaborate molding or trim.

In the case of wallpaper hanging, you may supply your own paper. If you plan to purchase it yourself, say so. Alternatively, ask if you can get a discount on purchases made through your contractor or paperhanger. The hanger supplies the labor of hanging it as well as the labor of preparing the walls and removing old paper if necessary.

What may not be included in the bid is the cost of plastering. In most cases, the painter and wallpaper hanger can recommend a plasterer.

Bids in the case of painting may vary widely--and so will the quality of the work. Slapping up the paint is not the same as carefully preparing the

surface and using top-grade materials.

How painters work

Although you must remove the books from bookcases and the dishes from the mantle, it is not always clear who will move the furniture. So, in addition to the preparation of the walls and the painting itself, you should work out the specifics of moving the furniture, keeping paint off the flooring and furniture, and the dates of when the job will be complete.

Be sure you check a sample of the paint color you have selected once it dries on the wall before the job has begun in earnest. If you change your mind after all the walls have been coated, it will be expensive for you to make a change.

One of the biggest problems you may have is cleanup. Make sure that it is clear to the painter which sink can be used for brush and hand cleanup (and be sure to allow only one to be available for this purpose). Insist that drop cloths be put down to cover the floor, and make sure that you cover everything that you can.

Because you will be charged for preparation time, ask if you can cut the cost of the job (and make sure you have a really neat job) by removing furniture yourself and removing or masking switch plates and fixtures and windows. Say that you will hold the painter responsible for damages, including damages from spilled paint, and ask to see his or her insurance.

If the paint job requires spraying, do not let the painter water down the paint.

The walls should be prepared properly. Corners should be dusted, as should moldings and baseboards. Woodwork should be wiped or lightly sanded. Holes should be patched with caulking and cracks should be spackled. Ideally, plaster should be left to dry for up to 3 weeks before it is painted, although it is unlikely that that will be the case.

Paint should not be left on window glass, and you should not be able to see drips, roller marks, or brush marks. The edges where walls and ceilings meet (if colors are different) should not be uneven.

After carpet installation, you will probably need a paint touchup.

How paperhangers work

Although paperhangers may be required to have a business license, a general contractor's or home improvement license is only rarely required as well.

Paperhangers generally charge you per roll, with extra charges for hanging heavy or embossed paper and putting up borders. You will also pay extra if any wall preparation is required. Although you may not be able to do your own plastering or hang lining paper, you may be able to remove old

wallpaper yourself.

When the paperhanger comes to inspect your job for the bid, he or she should also check the composition of the underlying paper to know what kind of adhesive will be required. In addition, the paperhanger should measure the rooms and tell you how many rolls of wallpaper you will need.

Finding a plumber or plumbing contractor

The best way to find a service provider is always by a personal recommendation, and locating a plumber is no exception. Without a recommendation, however, you can contact a local hardware store or a plumbing supply center for suggestions. The classified ads in your local paper also might be of help. For whomever you find, though, be sure to get references.

For major construction or renovation, you need a plumbing contractor. The architect may refer one, or there may be one with whom the general contractor normally works. If you need to find one on your own, ask a local supplier of plumbing fixtures for a recommendation or a professional association for a reference (your local library can help you with this). In any case, the situation is generally complicated and a great deal of money is usually involved, so research thoroughly.

It is critical to find a contractor who has experience with the kind of job you have in mind. Someone who can fix a toilet problem may not be qualified to install new fixtures, to work with flooring, drywall, or tile, or to handle any complications these materials may pose. It is particularly important to get someone experienced if your job involves remodeling rather than construction, because it is much harder to work within the confines of a house that has already been framed than it is to work on one where you are starting from scratch.

Checking out the candidates

Try to locate at least three real candidates (i.e., people who are qualified and are available to work when you want the job done) and, if possible, examine work they have done in the past to see how it looks.

A plumbing contractor who installs water pipes and drainpipes must be licensed by the state and appropriate local authority because the work involves public sewer and waterlines. If there is any problem in meeting building codes or if the work is not up to par, the contractor is the one who is financially responsible. The plumbers who report to the contractor need not hold a license.

Whenever a contractor is working on a public sewer or water main, most cities and towns require that a bond be posted. This is a surety bond that pays the cost of any repairs that are required if the contractor does any damage. Unless you hire a person who is licensed, insured, and bondable, you may be required to post a cash bond--which may amount to thousands of dollars--to get your work done. Should there be any problem, you could lose your bond.

Before you solicit a bid, phone the local Better Business Bureau to see if any complaints have been filed against them, and make sure that the plumbing contractor is licensed or registered if your state requires such. If complaints

have been filed, ask your prospective plumber about them and investigate further if you're not satisfied with the answer.

Getting a bid

Ideally, you should get bids from three people. The bids should always be based on identical specifications. The bids should be in writing and spell out exactly what work is to be done and what materials are to be used (including the type, quantity, style, brand name, and style number of all goods) so that the numbers submitted to you are truly comparable. Furthermore, the clearer and more detailed the bid, the fewer disappointments and haggling you face in the future.

Once you have selected the plumber or contractor, you will probably have to make a deposit. About 15-20% is standard for covering the startup and the purchase of initial materials. Making the additional payments on an as-you-go basis makes sense for you because it gives you some negotiating power.

Working on a new house

Carpentry work must be completed before the plumbers come in so that they can rough in the drainlines and supply lines. Although this will involve cutting and drilling holes through the framing, a good plumber will not weaken the floor or wall by removing large sections. You may have to wait to install drywall to enclose the plumbing until after the drainlines and supply lines are inspected and pressure-tested. This depends on your local building codes.

Problem areas

A contractor should work closely with the plumber(s) to make sure that the plans are followed and to avoid problems such as cutting large holes in structural elements, failing to vent drainlines or provide drain traps, failing to recess pipes, improper soldering of copper or gluing of PVC pipes, and reversing hot and cold lines.

Also make sure that the plumber pressure-tests not only all waterlines but also gas lines. Although most plumbers are likely to do this on new construction, they may avoid it on renovations because they consider it a waste of time.

Cutting down on costs

Because a great deal of the work involved in renovating a kitchen or bathroom involves demolition, you may be able to save money by doing this yourself. Plumbers are often willing and even happy to relinquish this task as long as you are capable of doing it properly. If you find a plumbing contractor who is agreeable to this type of arrangement, find out exactly what is involved (e.g., removing fixtures, disconnecting waterlines) and to what extent (e.g., just removing the tiles versus completely stripping the walls down). Make sure you can do the work, and then come to terms with the plumbing contractor about your responsibilities and a timetable. If your part

of the job is not done when the person engaged to do the next portion shows up, you may wind up paying overtime expenses that eat up the amount you had hoped to save by doing the job yourself.

Do-it-yourself plumbing

For information on do-it-yourself plumbing, see "Common Plumbing Problems" under "Home Maintenance."

Wall coverings fall into three categories: paint, wallpaper and its relatives (fabric and plastic), and textured surfaces such as wood, brick, tile, and cork. Their purpose is both protective and decorative. As in other decorating decisions, your choices will be governed by your budget and your tastes, but it is also important to consider ease of maintenance and upkeep. Refinishing or installing a textured surface may be costly, but once in place these coverings are durable and easy to care for.

Like the textured finishes, wallpaper, plastic, and fabric help to disguise an imperfect surface. They vary enormously in terms of initial cost and durability; however, there are many options that are priced reasonably and wear well. Paint generally shows dirt, must be refreshed frequently (though this is less true with higher-quality paint), and often reveals any flaws in the underlying wall, but repainting is a relatively inexpensive way to change your color scheme.

Brick

Brick is durable and easy to clean if sealed.

Brick and stone, simulated

Simulated brick or stone can be bought as individual "bricks" or "stones," respectively, or as panels. Although the bricks in a panel are of course joined, some are made to accept grouting so that they will appear more authentic.

Ceramic

See "Tile, ceramic, plastic, and mirror" below.

Cork and fabric wall covering, paper-backed

Cork, burlap, felt, and grass cloth (natural or synthetic) may be laminated to paper and sold in rolls like ordinary wallpaper. This type of wall covering should be hung over wallpaper or on top of lining paper. Some can be covered with a polyurethane sealer to make them washable.

Cork sheeting or tile

Cork is a good insulator for sound and heat and is also good for covering uneven or rough walls.

Cushion-backed paper

Cushion-backed paper, made out of washable vinyl, can be used to cover a variety of walls. In particular, a wall that is made of concrete or another rough surface, or a plaster wall that is cracked, are good candidates for cushion-backed paper.

Fabric wall coverings, unbacked

Unbacked fabric wall coverings include silk, burlap, sheeting, and glazed chintz, but avoid those that stretch or are loosely woven. If fabric is thin or

shiny, it should only be hung over lining paper. Some can be covered with a polyurethane sealer to make them washable.

Flocked paper

Flocked paper has a surface pattern of a fine pile over a paper or vinyl base, giving it a distinctive texture.

Foil paper

Foil paper is metallic plastic film laminated onto paper or cloth. Because neither paper nor cloth can "breathe" under the film, underlying paper must first be removed or else mildewing may occur. You may also need lining paper underneath because any underlying imperfections in the wall will be made more obvious when covered with foil. Foil paper may be prepasted.

Hand-printed paper

Hand-printed paper, also called just paper, may have an underlying material such as vinyl, foil, or even linen or silk. Costs vary and there may be a wait for delivery. Hand-printed paper is usually not pretrimmed, may need a lining, and should be professionally hung.

Lining paper

Lining paper, also called blank stock, is frequently used under fragile wallpaper, fabric wall covering, paper-backed fabric, and cork wall covering. It covers any flaws in the wall and helps heavy and textured wall coverings adhere better.

Machine-printed paper

Machine-printed paper is moderately priced because printing on high-speed presses reduces manufacturing costs. Printed paper has a wide range of possibilities.

Paint

Top-coat paints--as distinguished from preparatory paints and paints for special purposes, such as floor paint--are used for wall painting. They come not only in a variety of colors but also in different textures and compositions.

Not all paints are available in all textures. A flat texture, also called matte or satin, is good for large areas. Eggshell and semigloss textures are generally used on walls that will need to be washed from time to time, such as those in the bathroom or kitchen. A high-gloss texture is usually used for trim.

Traditionally, paint composition has been either water- or oil-based. Water-based paint rolls on easily, dries quickly, holds color, does not show brushstrokes, is generally odorless, can be applied to damp surfaces, and is easy to clean. It is suitable for plaster, paper, and brick.

Oil- or alkyd-based paint is shiny, durable, and waterproof. It is suitable for wood, metal, and bathroom and kitchen walls.

New formulas, however, combine the qualities of both water- and oil-based paints for optimal cleaning and durability. Check with a paint retailer before you make a selection. As a general rule, consider more expensive, better quality paint for longer wear and fewer problems with peeling.

Prepasted paper

Prepasted paper comes with an adhesive coating so that it can be hung once it has been dipped into water or moistened with a damp sponge. If the paper already on the wall is smooth and tight--and if it is not made of vinyl--prepasted paper can be hung right over it.

Strippable wall covering

When it's time to change the paper, strippable paper can be peeled rather than steamed or scraped off. Although most fabric-backed vinyl is strippable, some vinyl is not. This can cause problems when you redecorate, because new covering should not be hung over vinyl. Using a quick-release adhesive makes any wall covering strippable.

Tile, ceramic, plastic, and mirror

Ceramic and plastic tiles are customary in bathrooms. They are tough and durable, although grouting may be difficult to keep clean and may occasionally need repair. Sealing will help keep it clean. Mirror tiles are usually not grouted, but over the years cleaning-product residue caught between tiles may become unsightly. One solution is to cover the edges of tiles with narrow wooden molding.

Vinyl wallpaper

Vinyl-coated paper, which is washable but not scrubbable, is not as durable as vinyl laminated to paper or cloth, or vinyl-impregnated cloth backed with paper. Old paper must be removed before vinyl is hung because vinyl cannot "breathe" and old paste underneath it may mildew. Any adhesive used with vinyl paper should contain a fungicide.

Washable/scrubbable wall covering

Manufacturers label washable/scrubbable wall coverings with four different symbols: a single wavy line means paper can be sponged, two lines mean it can be washed, three mean it can be easily washed, and a wavy line plus a brush means it can be scrubbed. Plastic-coated paper, at one end of the range, should be gently spot-cleaned with a damp cloth, whereas vinyl-coated and other tough papers can take rougher cleaning on tough spots like grease and smoke.

Wood paneling

So-called "wood" paneling may be made of laminated plastic or of actual wood. Generally protected with a plastic coating, it comes in virtually every type of wood grain and color. It may also be made to simulate stone or other

textures, including barn siding.

Woodchip paper

Woodchip paper has a heavy paper base covered in wood chips, giving it an interesting texture. It is meant to be painted over.

Expiration dates can usually be found on the bottom of a tube or on the label of a bottle of many medications, both prescription and over-the-counter. After the expiration date, some medications may simply be ineffective, but others may be toxic. Do not use a medication past its expiration date.

Antibacterial ointment

The names of some antibacterial products end in "-sporin." Use these ointments on minor cuts and scrapes, and then cover with a bandage.

Antidiarrheal medication

Although various over-the-counter drugs exist for diarrhea, preparations containing bismuth (such as Pepto-Bismol®) are best. Consult your physician if your symptoms last more than 48 hours.

Antihistamine cream

Antihistamine cream will relieve itching from bites, stings, rash, and other minor skin problems. It also soothes the pain of sunburn.

Anti-inflammatory/swelling medication

Both aspirin and ibuprofen (such as Advil®) are recommended for muscle pain and arthritis, but aspirin has been linked to Reye's syndrome so is not recommended for children under 18.

Baking soda

For relief of occasional heartburn, indigestion, and stomach upset, keep baking soda or a brand-name item (in tablet or liquid form) on hand. Some of these have expiration dates. If antacid does not provide relief in 2 weeks, discontinue use and see your physician.

Baking soda can also be used in a bath to relieve itch. It can also be mixed with warm water until it has the consistency of paste and then dabbed onto the skin to relieve the pain of sunburn or stings.

Bandages, adhesive

Ready-to-use bandages, with a gauze pad attached to an adhesive strip, are for small bruises and scratches. They come in a variety of widths (usually ½" to 1"), shapes (extra large, medium, and small strips; small strips and circles; and some especially made to fit knuckles or fingertips), and colors (special designs for children). If you have small children, keep a box of the extra wide on hand for knee scrapes; otherwise, one box of assorted sizes is sufficient.

Bandages, stretch fabric

Stretch-fabric bandages are wrapped around a sprained muscle or joint, such as a knee, wrist, or ankle, and secured with a clip that generally comes with the bandage. They come in different sizes and widths, but a 2"-wide bandage covers most situations.

Betadine

A painless, disinfecting wound cleaner, betadine is preferred to hydrogen peroxide, which may damage tissue as it bubbles out.

Cough/cold/allergy medication

Antihistamines (for a sneezing, runny nose and itching), a decongestant (for a stuffy nose), an antitussive (to relieve a dry cough), and an expectorant (to loosen a cough) may help to relieve a cough, cold, or allergy. A pharmacist can help you find the right medicine for your symptoms. The expiration date printed on the label of the box or jar should be observed. Most medication just loses its potency, but some become toxic over time. Discard any tablets that are chipped, cracked, or discolored; capsules that have softened or cracked; ointment that has changed odor or appearance; tubes that are cracked, leaky, or hard; and liquids that have thickened or discolored.

Gauze bandage

A gauze bandage, which comes in a roll, is wrapped around a dressing, to hold it in place, and tape is applied over it. Gauze protects the wound while its open weave permits air to circulate around it.

Gauze pads, sterile, 4"

For larger wounds, a gauze pad is used as a wound dressing and held in place by a bandage instead of an all-in-one adhesive bandage. Gauze pads come in a variety of sizes, but a 4" pad will cover most wounds.

Ice pack

An ice pack reduces bleeding or swelling. Old-fashioned ice packs that could be filled with ice and capped have generally been replaced by reusable, pliable ice packs that are stored in the freezer until needed or one-time use ice packs that are "activated" when you twist them. You can also make an ice pack by wetting a wash cloth in rubbing alcohol (because alcohol does not freeze, the cloth won't stiffen), placing it in a resealable plastic bag, and keeping it in the freezer. A bag of frozen vegetables works perfectly as a makeshift ice pack. You should have more than one, because generally you should apply the ice pack for several minutes, leave it off for several minutes, and then reapply; while one bag is re-icing, you can use the other.

Latex gloves, disposable

For tending to a bloody wound, it is a good idea to wear latex gloves.

Ointment, antibiotic

Bacitracin and other multiple ointments can treat minor cuts.

Ointment, burn

For minor burns, an anesthetic medication (brands end in "-caine") should reduce the pain. But if you suspect that a burn is serious, do not apply a burn

ointment. Get the burn treated by a physician immediately.

Ointment, sunburn

An anesthetic medication (some brands end in "-caine") or aloe should be adequate for treating a sunburn.

Pain relievers, generic

Aspirin, ibuprofen (such as Advil®), and acetaminophen (such as Tylenol®) are all pain relievers and fever reducers, but because of the link to Reye's syndrome, aspirin is not advised for children under 18. There are pain relievers formulated for children, but once your child is 12 years old or weighs at least 90 pounds, he or she should be able to use any of the adult medications; check the product label for more information.

Soap, fragrance-free

In a portable first-aid kit, include fragrance-free soap to clean hands and wounds.

Syrup of ipecac

To induce vomiting if certain poisons are ingested, have syrup of ipecac on hand. If kerosene, gasoline, or another petroleum product has been ingested, vomiting is dangerous, so never take or administer this product without the advice of a physician. In case of suspected poisoning, call your nearest Poison Control Center or hospital emergency unit to ask for directions. Check the expiration date of the syrup of ipecac before using it.

Tape

Tape holds gauze bandages in place. It comes on a roll, in different widths (generally ½" and 1"), and in both clear and cloth versions. The cloth version provides more stretch, whereas the clear version is more moisture-repellent. For all-purpose use, buy a roll of 1" cloth tape.

Thermometers

Oral thermometers are used for adults, who can hold the thermometer under their tongue; rectal thermometers are used for infants. Digital thermometers, which work on a battery, are easier to read than mercury thermometers. If family members will share a thermometer, buy probe covers, which are sanitary shields. Digital thermometers that read temperature in the ear are very accurate and take readings rapidly, but they are expensive.

Blood pressure test

A blood pressure test checks the condition of your heart and arteries. A rubber cuff is placed around the upper arm, inflated until it stops the flow of blood through the artery, and then slowly deflated until the flow resumes, when the systolic pressure is measured. (The doctor uses a stethoscope to listen for this sound, placing the measuring portion on the crook of your arm below the cuff.) Then, the cuff is further deflated until the blood is flowing steadily through the open artery as the heart is relaxed, and a second, diastolic measurement can be taken. The doctor is looking for high readings, particularly in the systolic, lower number, which should be below 90 or, ideally, below 80. For home use, you can buy different types of blood pressure measuring instruments; the easiest and most accurate ones are electronic.

Breast self-examination

Because breast cancer may affect 1 in 9 women, because 90% of breast lumps are first discovered by the patient (rather than a doctor), and because some sources estimate that regular self-examination may reduce breast cancer deaths by 25%, breast self-examination is a good practice for women to follow. (You should also augment it with regular doctor visits and, as prescribed, mammograms.) A breast self-examination consists of three parts: exam in the bath or shower, observation in the mirror, and breast exam lying down. Your gynecologist, your local American Cancer Society office, or the American Cancer Society headquarters (19 West 56th Street, New York, NY 10019) can provide a booklet on self-examination. (In Canada, write to the Canadian Cancer Society at 10 Alcorn Ave., Suite 200, Toronto, Ontario, M4V-3B1.)

CBC (complete blood count)

A CBC is the most frequently performed lab test. It is used to check for anemia and infection and screens for a variety of problems. It is not one test but rather a group of seven or more tests that reveal a great deal of information about all of the blood cells--red, white, and platelets.

Cervical smear, Pap smear

A cervical smear is a screening test (not a diagnosis of cervical cancer) that determines the presence of cancerous or precancerous cells in the cervix. Results have formerly been reported in one of five categories: Classes I and II mean no malignancy, Class III is a maybe and the smear should be repeated, and Classes IV and V require attention. Newer classifications divide smears into three main categories: benign (noncancerous), precancerous (showing abnormal cell changes), and malignant (possibly cancerous).

The American Cancer Society suggests that women ages 20-40 who are not at high risk and who have had two previous normal Pap smears need another only every 3 years. Women over 40, women at high risk, and those with a

recent positive Pap smear should have one more frequently--annually or as the doctor advises. The American College of Obstetrics and Gynecology recommends a yearly Pap smear for all women at the onset of menstruation.

Cholesterol test

A cholesterol test is a blood test that measures the amount of cholesterol in the blood--a major risk factor of heart disease. Lipoproteins are also measured, both high density (HDLs) and low density (LDLs). High levels of the former and low levels of the latter are also helpful in preventing heart disease. If your reading is normal, checking once or twice every 10 years is probably enough, but if it's questionable, your doctor may monitor it more often.

Total cholesterol of less than 150 puts you at low risk for heart disease but may put you at a slightly increased risk for colon cancer and stroke. Under 200 is generally considered desirable.

Over 230 puts you at an average risk for heart disease, and a reading of 260 is now considered the outer limits of normal.

Men's HDL levels generally range from 65 (low risk) to 25 (high); over 55 is best. Women's levels usually range from 75 to 40; over 65 is best.

Ear, nose, and throat examination

The doctor uses a small funneled tool to see the eardrum and may use a pneumatic otoscope, which delivers a small puff of air that strikes the eardrum, to observe whether or not it moves as it should. To determine eardrum movement, the doctor may also use a vibrating instrument behind the ear and place a plug (a tympanometer) in the ear. The doctor will observe the nose with a small, hand-held speculum, a tool that gently opens the nostril, and may simply hold back the tongue with a tongue depressor to observe the throat.

Eye examination

Those who wear glasses or contact lenses should routinely make sure that their prescription is appropriate, but even those who do not should be screened for glaucoma, a generally symptomless eye disease that can result in blindness. A general eye examination usually includes six or more procedures. The visual acuity examination is the eye chart test; if you have any problem with it, you will take the refraction test (where you try out various lenses) to determine your lens prescription. You may be asked to take a color defectiveness test (usually, just making out patterns in colored dots) to see whether or not you are "color blind." The doctor will probably ask you to look up, down, and to the sides (to check the eye muscles) and check the pupillary reflex (when your pupil contracts due to bright light) response with a flashlight. During a slit-lamp examination, the doctor will look through your eyes with a high-power microscope. The glaucoma test measures the pressure within your eyeball. Patients 40 and over will be

checked for cataracts. Those 60 and over will be checked for macular degeneration, an eye disease that attacks the central retina.

Hearing test

Hearing tests are used with children to screen for hearing problems that might interfere with learning how to talk. The subject must listen to a series of tones of different pitches and intensity.

Immunization, DTP

DTP is an immunization given to children to prevent diphtheria; tetanus, sometimes called lockjaw; and pertussis, sometimes called whooping cough. This is probably the first shot a baby receives, and the immunization should be repeated at specific intervals until the child enters school. Your child's doctor can give you the immunization schedule and further details on the benefits and risks of DTP. A DT vaccine is available for children who may suffer from adverse effects if given the pertussis vaccine. You and your doctor will be able to determine whether or not this is the case, based on severe reactions to DTP, a history of seizures or convulsions, and other factors. Also, since 1991, DPAT (acellular pertussin), which has fewer side effects, has been available instead of DTP for the last two immunizations in the DTP series.

Immunization, hepatitis B immunization

Hepatitis B is contracted through exposure to infected blood and other body fluids. The hepatitis B vaccine, or HBV, can prevent serious liver disease caused by hepatitis B and even the cancer that may result from such disease. It is now recommended by the U.S. Public Health Service as a beneficial vaccine for children to prevent the risk of hepatitis in the future, and children exposed to hepatitis in the home or who have infected mothers should definitely be vaccinated. Ideally, the vaccine should be given at birth, followed by two more vaccinations by 18 months; however, children can receive vaccinations at any age. Adult immunizations have proven unsuccessful.

Immunizations, Hib

Hemophilus influenzae b can cause serious infections in children, including the often fatal meningitis and potentially fatal epiglottitis. Current Hib vaccines have few side effects and are given in four doses by 15 months of age. Your doctor can detail the side effects and risks of Hib immunizations.

Immunization, MMR

The MMR vaccine is to protect children from measles, mumps, and rubella. The immunization should be given around age 15 months and again around age 12 years. Your doctor can detail potential side effects.

Immunization, OPV

The oral polio vaccine, or OPV, has virtually wiped out polio in North America, with fewer than a dozen cases reported every year. Children usually will receive four oral doses of the vaccine before they start school. An injectable, inactivated version of the vaccine, IPV, is available for children who live with or are in contact with people who may be at risk due to various factors. Your doctor can give you further information on the risks and possible side effects of OPV.

Immunization, Td

Made especially for children ages 7 and older and for adults, Td is a vaccine that prevents tetanus and diphtheria. A booster shot is recommended every 10 years, but if you have a serious or infected wound and have not had a booster in the last 5 years, then you should get one.

Mammogram

A mammogram is an X-ray to determine breast cancer. The American Cancer Society recommends a baseline (for purposes of comparison) mammogram for women between ages 35 and 39, a repeat every 1 or 2 years for ages 40-49, and then yearly for ages 50 and over. The National Cancer Institute says that women should have an annual mammogram if they are at high risk, that is, women over 35 with cancer already in one breast, women over 40 with a history of premenstrual cancer in the immediate family, and all women over 50. The American College of Radiology recommends mammograms every 1-2 years for women over 40, and the American College of Obstetrics and Gynecology recommends them annually or, if a lesion is found or you are at high risk, more frequently. Check with your doctor to determine whether or not you are at high risk. One breast at a time is examined. It is placed on a flat surface containing the X-ray. A compressing device flattens out the tissue, and then the X-ray (or two, one from the top and one from the bottom) is taken. The procedure is then repeated for the other breast.

Occult fecal blood test

The presence of blood in the stool, as well as persistent weight loss, diarrhea, or any change in bowel habits, should be reported to your doctor, but the blood may be so slight as to go undetected. The occult fecal blood test is performed in the hope of earlier detection, but there is some dispute about its diagnostic usefulness. Your doctor can help you decide whether or not this is of value for you; the test is generally recommended for men and women over 50. You can use an at-home kit and determine the results yourself, or the doctor may give you a kit to collect a sample and send it to a laboratory. The doctor may do a digital rectal examination both to detect polyps and to collect a sample of fluid that can be put on a slide as an occult blood test.

Reflex examination

To test reflexes, the doctor uses a rubber hammer at certain check points

such as the knees, elbows, and ankles to make sure that your reflexes work properly in both limbs and that they match. The reflex examination can determine neurological disorders.

Sigmoidoscopy

Sigmoidoscopy is a visual examination of the inside lining of the lower colon, rectum, and anus for tumors, polyps, and other bowel diseases such as Chrones disease or ulcerative colitis. The development of a flexible fiber optic sigmoidoscope, about 2 feet long with a light source at the tip, makes this exam much more effective and less uncomfortable. You may have to prepare the bowel by fasting or eating a special diet for a couple of days. The exam itself may take only 5-10 minutes. If you are at especially high risk for colon cancer (your family has a history of polyps or cancer or you have ulcerative colitis), your doctor may recommend a periodic colonoscopy, which permits a visual examination of the upper as well as the lower colon, instead of a sigmoidoscopy.

Teeth and gums exam

The most common chronic disease is dental disease--tooth decay or gum disease. Dental plaque, a bacterial-containing substance that accumulates around and in-between teeth, is the major cause of both. Daily brushing and flossing will remove plaque, but to check whether or not you're doing a proper job, you can use one of two easy methods. Discoloring tablets contain a dye that leaves a red stain on areas where there are food remains and plaque. Or you can use a plaque light in combination with a fluorescent solution swished around the mouth; the solution makes remaining food glow a bright orange-yellow. In either case, where you see the red stains or glow you should floss and brush again.

Testicular self-examination

Symptoms for testicular cancer are rare. It occurs primarily in men under 35 and is rare in men over 50. Testicular self-examination is best performed when the body is warm (after a bath or shower). Raise one leg onto a chair, and gently feel the scrotal sac on that side of your body until you locate the testicle. Roll it gently between the thumb and fingers of both hands. The surface should feel firm, but not hard, without any lumps. Repeat the procedure on other side. If any lumps are detected, or if the testicle is enlarged, consult a doctor right away.

Tuberculin skin test

A screening test for tuberculosis helps to determine whether or not you have ever been infected by the tuberculosis bacteria. A positive test may mean either an active case or a previous infection. If the case may be active, you will need further testing: a chest X-ray and probably a sputum sample.

Urinalysis, or UA or urine test

A urinalysis is not a single test but a group of tests that screens for a variety of diseases such as diabetes, kidney stones, urinary tract infections, liver disease, gallbladder disease, hypertension, and hormone problems. Some involve the use of a dipstick (chemically treated paper strips that may change color and intensity when dipped into the urine if certain substances are present). People with high blood pressure, diabetes, gout, or recurrent urinary tract infections will be closely monitored.

FIRES

Keep cooking surfaces free of grease; keep curtains, napkins, pot holders, and aprons away from heat. Use caution when storing matches. Do not store gasoline. Keep flammables only in small quantities, never in glass, and always in a safety container. Store oily rags and oily clothes in covered metal containers. Check space heaters for frayed or damaged wiring. Make sure fire screens fit closely around the entire perimeter of the fireplace to prevent sparks, and never leave kindling, papers, or firewood near the opening. Clean, maintain, and use heating equipment properly. Avoid using extension cords even temporarily.

Fire emergency plan

In case of even a small fire, everyone should get out of the house and meet at a predetermined location. Have a fire drill to practice crawling on hands and knees to avoid smoke and heat and to get familiar with an escape route. Tell children that they cannot hide from a fire in a closet or under a bed. Advise everyone in case of a fire alarm to close the door to his or her room and put a hand on it; if it is hot, do not enter the hallway but use an alternate escape, presumably out the window but ideally not over another window, because flames may be coming out of it.

{ewl uwmf, MVWMF11, home.wmf}A collapsible escape ladder from the hardware store can be anchored permanently to the floor and available for use in an easily opened storage box beneath any window that might be an escape route. If a child or invalid is in the house, ask the fire department for "tot identification" or other special stickers to post indicating special needs in your house. If you live in a high-risk area for fires, pet carriers and leashes should be near the door as well as a strong-box with important papers. Children should know how to call the fire department; this is best done from outside. The local fire department will assist you in any of these areas.

Fire extinguishers

The National Fire Protection Association suggests that before you buy a home fire extinguisher, you should contact your local fire department and ask for advice and training in how to use it, or ask for help from a fire extinguisher distributor. You need an extinguisher on each level of the house and in the garage, kitchen, workshop, and near the furnace, boiler, and fireplace. You must have the correct type for the kind of fire most likely to occur in a particular place (i.e., a grease fire in the kitchen or an electrical fire in the workshop).

An A-B-C-rated extinguisher is a multipurpose one that can be used on class A combustibles (wood, cloth, paper, rubber, many plastics), class B (flammable liquids such as gasoline, oil, grease, tar), and class C (electrical fires). An extinguisher with only a class B and/or C rating can be used on a class A fire, but using water or a class A extinguisher on other fires can be

extremely dangerous. The numbers indicate what size fire can be put out. Home extinguishers are usually rated 1 or 2 A, and 5, 10, or 20 B and C.

Read and follow maintenance advice in the owner's manual that comes with all UL-listed extinguishers, and check monthly to see whether the extinguisher is charged. Most have a pressure gauge and/or a dial face that clearly indicates an acceptable range of charge (the needle or indicator is in the green zone if acceptable, in the red zone if not). A disposable fire extinguisher can be used only once and must then be discarded and replaced. A rechargeable model, even if used for only one second, must be serviced afterwards.

Smoke detectors

Smoke detectors can be battery-operated or incorporated into an electrical system during construction or rewiring. A photoelectric smoke detector responds to smoke and is good for slow, smoldering fires, whereas the ionization-type detector detects fast-flaming fires. Using both enhances your safety. Install one outside each bedroom door (inside, as well, if you sleep with the door closed), on the ceiling in the hallway on each floor, in the attic, in closets containing heating equipment, on the ceiling at the bottom of the basement stairs, and just outside the kitchen. (Inside the kitchen and bathrooms, cooking heat and shower steam will trigger many false alarms.)

ACCIDENTS

Train children to put away toys and games, never leaving objects on the floor or stairs. Install lights in dark areas. Buff waxed floors thoroughly or use self-polishing wax that needs no buffing. For better traction, mix sand with paint when you paint outside steps. Apply latex spray-on coating or adhesive strips (or decals) to the underside of rugs that slide, and use nonslip decals inside the tub and small wading pools. Install handrails on every stairway and a second one at child height if necessary.

Scalding

Keep pot handles turned away from the edge of the stove. Read microwave cautions, and be aware that some ingredients get dangerously hot whereas others do not (e.g., the jelly inside a jelly doughnut can burn while the dough is just warm). Have a plumber install a mixing valve in the waterline to the bathroom to make sure that the temperature never exceeds 110-115 °F (43-46°C). You may be scalded by settings as low as 125 °F (52°C).

Shocks

Remember that water and electricity do not mix. Do not ever work with a fuse box or circuit breaker box while standing on damp ground. Always plug a cord into an appliance before plugging the other end into the wall. Do not plug several appliances into a multiple outlet plug in a single wall receptacle. Have all systems grounded by connecting a ground wire to the water main or

ground rod. This prevents shocks, because it carries electricity into the soil instead of allowing it to travel into a person's body, and it also prevents fires by keeping the system from overheating.

HAZARDOUS MATERIALS

Keep all chemicals labeled, tightly closed, and on high shelves. Keep the number of the local Poison Control Center prominently displayed. Do not mix chemicals. Wear gloves and goggles as recommended on labels of chemicals.

Asbestos

Asbestos may be in building materials (e.g., siding, floor tiles, chimney cement, ceiling tiles, pipe and boiler insulation, wood filler) installed up through the early 1970s. Before you do any renovation, contact an asbestos abatement company to do the checking and to remove the asbestos if necessary, although sometimes it is best simply to cover it over. For more information try calling your local health department, or call the Environmental Protection Agency at (202) 554-1404. (In Canada call the ministry responsible for environment in your area.) Another option is to look in the Address Book for the word "asbestos."

Formaldehyde

Formaldehyde-infused products (including pressed wood, particle board, and plywood) and formaldehyde insulation that is wet or exposed to the living area through wall cracks can bring formaldehyde into the house (although over the years, this risk diminishes). It can cause nausea, breathing problems, and perhaps even cancer. If you suspect that there is formaldehyde in your house, contact the Indoor Air Quality Information Clearinghouse at (800) 438-4318. (In Canada call the Canadian Housing Information Centre at (613) 748-2367.)

Lead

Lead can damage the brain, kidney, nervous system, and blood cells. Pregnant women and children are particularly sensitive to lead. In a home, a lead water main and shutoff valve should be replaced with a copper one, and the homeowner should be aware of the possibility of lead-based paint on walls, ceilings, and interior trim moldings, especially in houses built before 1980.

Samples of suspicious paint can be tested by a laboratory (contact your local health department). You cannot sand, chip, or burn lead paint without exposing the whole family to toxic effects. The best alternative is to replace moldings completely and cover walls with wallpaper, paneling, or other material. If a wall with lead paint must be scraped and repainted, make sure that the painter is a lead-abatement specialist. While any lead removal work is being done, you should stay away from the house.

For more information call the National Lead Information Center at (800) 532-3394 and they will send you a free pamphlet.

Pesticides

Until 1987, a highly toxic pesticide called chlordane was used for termite control. Some people will not buy a house that reveals any traces of this substance because its effect lasts for years. Call the Environmental Protection Agency to find out who can check for its presence in your area. The Toxic Substance Control Act Information number of the EPA is (202) 554-1404. (In Canada call the ministry responsible for environment in your area.)

Radon

The presence of radon, an odorless, invisible radioactive gas, can be determined by a radon testing company or by using testing devices that can be placed in basements and crawl spaces. These devices are most reliable in winter when the doors and windows are closed. The local Environmental Protection Agency office can give you a list of test-kit manufacturers. Gas can be kept out by sealing cracks in any walls with home-repair kits and ventilating crawl space, or the basement or cellar so that gas will be dispersed. To receive free information on radon, call the EPA's Radon Hotline at (800) 767-7236. (In Canada call the ministry responsible for environment in your area.)

HOME SECURITY

Locks and other security devices

A deadbolt lock, surface-mounted or installed in a cylinder, is the hardest to pick. For further protection, a metal guard plate bolted in place over the lock cylinder leaves only the key slot exposed, so a burglar cannot drill into and remove the cylinder. A doorviewer (peephole) that gives you a wide-angle view through a locked door lets you see who the person is before you open the door. Sliding doors can be secured with a wedge lock or with a 3/4" wooden dowel that fits into the bottom track and prevents the door from being opened. For windows, use a dowel wedged vertically above the lower window sash, or drill a 5/16-inch hole into where the window sashes overlap, going only part way into the exterior sash, and then slip a nail into the hole to keep the window secured, or use the window's self-lock.

{ewl uwmf, MVWMF11, home.wmf} 1. strike plate

2. knob

3. rose

4. faceplate

5. cylinder

6. latch

Security/alarm system

Security systems protect your safety, increase your peace of mind, and may also lower your insurance rates. You may also be able to choose a number of optional features including the ability to automatically turn on lights, call for medical assistance, sound an alarm if equipment malfunctions, indicate that doors and windows are left open, and even protect you from fires as well as burglary. Security systems are usually operated by a control panel and sometimes by remote. In a hard-wired system, each zoned area, door, and window has a wire running to the central console, and if a window sash or door frame is opened, the alarm goes off. A wireless system is easier for the do-it-yourselfer to install but less responsive to any kind of problem. Motion sensor and infrared (heat) sensors are used in some security systems for added protection.

Abrasive (scouring) cleaner

Use a strong abrasive, such as scouring powder, to clean hard surfaces such as porcelain. Formica® and other countertops should be cleaned with a milder abrasive, such as a scouring liquid, or with baking soda, both of which can be applied with a sponge. A mild, nonabrasive cleaner applied with a toothbrush will remove mineral deposits around bathroom fixtures, the sink, and the drain area.

All-purpose cleaner

Some all-purpose cleaners are meant to be diluted and used in a bucket with water, whereas others are sprayed on. Some require rinsing when applied to a floor. Use them to clean bathroom walls, bathtubs, blinds, showers and shower stalls, appliance exteriors, and more.

Baking soda

Baking soda is a good all-purpose abrasive cleaner. It can be used like a powdered cleanser, but on more delicate surfaces. It will not scratch nonstick pans, Formica® counters, or stainless steel sinks. You can also make a paste of baking soda or talcum powder plus dry-cleaning fluid to clean wall coverings. Cover the area from the outside in, let it dry, and then rub it off with a soft brush. Repeat if necessary.

Keep an open box of baking soda in the refrigerator and freezer to keep their interiors deodorized. To remove bad odors from a thermos bottle, add two or three tablespoons of baking soda to the thermos and fill it with water; leave it sealed for a day or so. Baking soda can also be used as a mild cleaning abrasive that won't mar most surfaces.

Bleach

Chlorine bleach is dangerous in combination with ammonia, toilet-bowl cleaner, and rust remover (see cautions under "Bleach" in "Laundering Supplies"), but combined with water it is an effective mildew remover and can also clean plastic resin furniture: spray a half-and-half water-bleach solution on, then wipe it off.

Broom

A hand-held, soft-bristled broom will clean dust and crumbs off wooden or tile floors. You can wash a broom in hot, sudsy water and then rinse it when it becomes too dirty to do a good job. Unless you take out the vacuum every time someone drops a few crumbs, you should also have a soft, long-handled broom. To use with both, you will need a dustpan.

Brushes

A basic set of brushes includes a stiff-bristled wire brush for pots, a vegetable brush for cleaning surface dirt off potatoes and other vegetables, and a bottle-cleaning brush for reaching into jars, bottles, and vases.

Brush, hard-bristled or scrub

A brush with a handle will provide extra abrasion to help clean a stubborn stain off of the floor or wall.

Brush, soft-bristled

A soft-bristled brush will sweep crumbs out of a corner or off a table and remove baking soda paste from a wall (see "Baking Soda," earlier in this topic).

Buckets

Keep cleaning solution in one bucket and clean water for rinsing in another. A two-sided bucket is very useful. Make sure that the buckets you buy are wide enough to comfortably dip your mop into.

Carpet deep-cleaning machine

The best kind of carpet deep-cleaning machine sprays water and detergent deep into the carpet fiber and then sucks it back out. These can be bought or rented.

Carpet despotter or shampoo

An aerosol foam carpet cleaner can clean a lightly soiled rug. A heavily soiled carpet may need a liquid cleaner scrubbed on by hand or applied with an electric shampooer. Test any carpet cleaner for colorfastness before you use it: apply a bit of it to a hidden spot of carpet that isn't readily visible and then rub it with a white cloth. If color rubs off on the cloth, try a different cleaner.

Cleaning cloth

You need a cloth to dust and shine glassware, furniture, metal, and other surfaces. The best ones are 100% cotton and lint-free. Buy diapers or napkins from a restaurant supply house expressly for this purpose, or use cheesecloth.

Deodorizing and disinfecting cleaner

Instead of an all-purpose cleaner, you may prefer a deodorizing and disinfecting cleaner, either foaming or liquid, designed especially for the bathroom, toilet, and garbage pail. WARNING: These products may contain phenol, which is poisonous to pets.

Dish towels

Linen napkins or cloth diapers make excellent dish towels because, unlike terry cloth, they do not create lint. You can find used linen napkins for sale at some linen-rental stores.

Dishwasher detergent

Granular detergents are more effective than the liquids. But if a box of

granular detergent contains lumps, replace it with a fresh one because it won't work as well as it should. Use only products made expressly for automatic dishwashing in an electric dishwasher.

Dishwashing soap

Dishwashing soap is for hand-washing dishes. It can also be used to launder delicate garments.

Drain cleaner

Drain cleaners are extremely caustic. For more about cleaning and unclogging drains, see "Common Plumbing Problems" under "Home Maintenance."

Dustpan

Although you can use a piece of cardboard as a makeshift dustpan, collecting what you've swept with a floor broom or off a countertop or table with a soft-bristled brush is easier if you use a rubber-tipped metal or rubber dustpan (metal ones warp and don't lie flat on the floor). You won't have to bend over if you have a long-handled dustpan. Some dustpans come as a set with the broom and conveniently hook onto the broom for easy storage.

Equipment caddy

If you have all your cleaning supplies and tools in a single place, you will work more efficiently. You can use a plastic tool caddy with a handle or a large bucket; you can even wheel your supplies around in a small wagon.

Feather duster

Although some people feel that a feather duster simply stirs up the dust, others find it easy to use and excellent for quick jobs, particularly over delicate surfaces such as vases and silk flowers, or for large areas, such as books in a bookcase.

Fiberglass cleaner

Fiberglass cleaners are specially formulated to clean fiberglass, but some of the all-purpose or bathroom cleaners will do the job just as well.

Floor cleaner and/or polish

On terrazzo, ceramic, quarry tile, marble, concrete, or vinyl, use a floor cleaner and/or polish. For wood, linoleum, or cork, use a damp mop only. Ask a floor or hardware dealer to recommend an appropriate cleaner; some only clean and others both clean and polish, leaving a shine. Even "no-wax" floors eventually lose their shininess, and you have to use a self-polishing cleaner on them, too. After vacuuming or sweeping up dust, use a string or sponge mop to apply the cleaning solution per label instructions. Use a hard-bristled brush to scrub stubborn spots, and then wipe them with a clean, damp sponge mop, frequently rinsing the mop. Make sure to remove all detergent

or the floor will look dull and will be slippery.

Floor polisher

Unless you have a lot of hardwood flooring or plan to re wax it more frequently than once or twice a year, it may make more sense to rent a floor polisher than to buy one. Rotating pads at the bottom of the machine apply the polish and other pads buff it to a shine.

Floor sealer

Some types of floors, such as marble, need sealers to help prevent stains and make cleaning easier. Ask your floor or hardware dealer for recommendations.

Floor wax

On an unvarnished wood, linoleum, or cork floor, use a floor wax once or twice a year or whenever a floor looks yellow. A solid paste wax gives the best finish, but it must be applied by hand with a cloth. A liquid wax (or oil) can be applied with an electric floor polisher. Buff with the polisher or a towel-covered broom. All other floors use water-based wax (ask a floor or hardware dealer for recommendations). Apply with a clean, slightly damp mop; apply a second and third coat in high-traffic areas, but let it dry and buff with a dry mop between coats. Before rewaxing, a water-based wax must be stripped.

Furniture oil

Wood furniture that is not varnished, lacquered, or waxed--for example, teak and certain oak pieces--may be oiled. Ask the hardware store to recommend the best product for the particular kind of oiled wood you are cleaning, or make your own with half and half turpentine and boiled linseed oil. Rub with the grain, using just a little oil at a time. Let it dry for 24 hours before putting anything on the surface. Although the wood may look dark at first, it will dry lighter.

Furniture polish

The point of polishing is simply to fill in scratches and marks and protect. Aerosol polishes and polishes with silicones do not fill in as well as wax polishes do. In addition, the force of the aerosol may damage the surface. You can make your own polish with equal parts olive oil, denatured alcohol, gum turpentine, and strained lemon juice; rub on a small amount with a lint-free rag, rub off the excess, and then use another cloth to shine it. Fine or antique furniture should be waxed, not polished; ask your hardware dealer to recommend a product.

Glass cleaner

For mirrors and windows, use a glass cleaner. Either buy a commercial product or simply add 1/3 cup of clear ammonia to a gallon of warm water.

Spray it on and wipe it off with newspaper or a squeegee; then use more newspaper or a rag to dry and shine the window.

Metal cleaner

All-purpose metal cleaners will work for most metals but are too harsh for silver. You can also make a homemade brass or copper polish with equal parts of salt, vinegar, and flour, or use a cut lemon dipped in salt.

Mop, dust

A dust mop, or string mop--or a makeshift mop that consists of a broom with a towel tied over it--is used to clean surface grime or dust from hardwood floors. A dust mop is appropriate whether the floors have a penetrating seal finish coated with wax or are surface-sealed with a finish such as polyurethane. If such floors are not cleaned regularly, ground in dirt can mar the finish.

You should use water very sparingly on a wood floor no matter what the finish, but a light misting of plain water (or a mixture of water and vinegar, 2 tablespoons of vinegar to a quart of water) can be sprayed onto the mop or towel to help it attract dust more effectively. Keep the mop pressed firmly on the floor, and on waxed floors follow the grain of the wood. If your mop head can be washed in a washing machine, tie it inside a mesh bag or inside a knotted pillow case and then throw it in.

Mop, sponge

A sponge mop, bucket, and all-purpose cleaner are what you need to clean vinyl, tile, and other smooth, washable floors. They can also be used to quickly clean the shower stall and bathtub. For stubborn spots on the floor, use a squeegee or a hard-bristled scrub brush. A good sponge mop is one that has a head that can be unscrewed and replaced once it is worn. In addition, a feature that allows you to easily squeeze out excess liquid is useful because the mop should never be sopping wet. Use one mop for applying all-purpose cleaner, and another for applying wax. You may want a third to rinse a cleaned floor. A mop that is rinsed after use will do a better job, and if it is stood upside down to dry, it will last longer.

Oven cleaner

Oven cleaner should not be used in continuous-cleaning or self-cleaning ovens. In normal ovens, it is sprayed on and left for a period of time (check the directions on the cleaner) and then wiped off. The most effective cleaners are very toxic and have strong fumes; odorless but less powerful formulas are also available.

Rubber gloves

Rubber gloves will protect your hands from harsh cleaning products and extremes of water temperature. To patch a small rip, turn the glove inside

out, spread instant glue around the tear, cut a small bandage strip slightly larger than the rip, and press it into place.

Scouring pads

Soapy scouring pads rust easily, so keep them as dry as possible. Soap-free metal scrubbers are good for cleaning stainless steel.

Scrubbers, nylon

Nylon scrubbers are heavy-duty, strong, and unlikely to scratch. Net-like scrubbers are safe for nonstick pans.

Silver cleaner

As an alternative to a commercial cleaning product, you can use a paste containing three parts baking soda and one part water. Rub it on, rinse it, and then buff. Although supermarkets carry silver cleaners, you may find a better-quality cleaning product at a well-stocked hardware store.

Sponge, dry

A dry sponge, available in the hardware store, can be used wherever liquids cannot. It is excellent for wiping lampshades, wallpaper, painted walls, and ceilings. Although a very dirty kitchen wall may need a subsequent cleaning with a grease-removing product, wiping it first with a dry sponge will remove the superficial dirt and dust and make the washing go faster.

Sponges

While natural sponges are rarely sold for cleaning, synthetic sponges are widely available and are an ideal cleaning product for all washable surfaces in the bathroom and kitchen. Large, flat sponge squares are useful for cleaning large areas such as the tub. These sponges can be washed in the dishwasher when they become dirty or acquire an odor; wedge them into a silverware compartment so they don't move around during the washing cycle. Letting sponges dry outside in the sun will remove odors, too.

Squeegee

A squeegee is the tool used to clean windows. Squirt your window cleaning fluid on the blade, squeegee the area, and wipe the blade on a rag. You can also use a squeegee to clean your shower stall.

Stepstool

A folding stepstool will help you clean the top of the refrigerator, the highest bookshelf, and so forth. The best stools are very sturdy and fold very compactly.

Toothbrush

When your toothbrush is too worn to do a good job on your teeth, put it aside and mark it "For Cleaning." Use it to clean small areas such as crevices in

silver or dusty niches in knickknacks.

Upholstery shampoo

Some commercial brands can be applied directly and brushed or vacuumed off. More effective ones must be applied with an electric deep cleaner. The cleaning code on your upholstered furniture should tell you whether to use a water-based cleaner (W), solvent-based cleaner (S), either (S-W), or neither (X). In the last case (X), only vacuum the furniture. Wool can be cleaned with water and a mild shampoo only. (Do not use ammonia, bleach, or cleaners for hard surfaces.)

Vacuum cleaner, conventional

An upright vacuum with a revolving brush and beater bar is the best for carpeting, whereas a canister vacuum, which usually has better suction, is the best for smooth floors. To serve both purposes, you can get a canister with a power nozzle attachment that beats deep dirt out of carpeting. All vacuums should have accessories such as crevice tools and brushes. Look for features such as retractable cords, a low top so it can reach under furniture, bags that are easy to replace, and variable speeds so you can use strong suction on carpeting and light suction on lightweight curtains. If the vacuum can blow as well as suck, it can be used to clean out tight spots or unblock the hose. Wet-dry vacuums can clean big spills.

Vacuum cleaner, hand-held

Hand-held vacuums can be recharged or plugged in like conventional vacuums. Plug-ins have more power and sometimes come with extension wands; they are better for cleaning the car. Wet-dry minivacs are great for sucking up spills but not so good for conventional vacuuming.

Vinegar

Vinegar can be used to eliminate many kitchen odors. To freshen a bad-smelling storage container, pour a cupful of white vinegar into a quart of water and leave it overnight. Vinegar can also be used to remove coffee stains on ceramic or glass. Just brew a half-vinegar-half-water solution in the automatic coffeemaker pot, followed by a brew of plain water.

Wallpaper cleaner, nonwashable wallpaper

A dough-type wallpaper cleaner can be used for many nonwashable surfaces--from canvas bags to wallpaper. An alternative is to try using a crustless lump of stale white bread to gently remove the stain.

Wax stripper

Commercial wax remover or an ammonia-based floor cleaner will remove old wax. Do a small section at a time: apply the product, let it soak in, then use a clean sponge mop to wipe the dissolving wax and dirt. Check with your nail to see if it's all gone. Use a second damp mop to clean it. The floor should be

dried thoroughly before a new coat of wax is applied.

Of all the handyman chores, electrical work is the most risky. If you make a plumbing mistake, you may have a flood, but if you make an electrical error, it could be fatal. So for maintenance on your home electrical system, you should hire an electrician. But for routine problems such as a blown fuse, you should be able to take care of it yourself.

For information on hiring and working with an electrician, see "Working with an Electrician" under "Home Maintenance."

How the electrical system works

In most houses built after World War II, electric service comes into the home over three wires, two of which carry current. It passes through the meter and goes into the service panel--also called the control panel, breaker box, or fuse box--which is the central command system for the circuits in your home.

The control panel is usually located near the electric meter and close to where the powerlines come into the house, usually in the basement but sometimes--especially in an apartment--in the kitchen.

Newer homes have circuit breaker switches or buttons. By flipping the main cut-off switch or button to "off," you can shut off all the power in the house at once. The majority of the other breaker switches or buttons control individual 120-volt circuits that supply up to 10 power or lighting outlets; there may be one or more of these switches for each room. A few switches or buttons control circuits that supply up to 240 volts to an individual appliance that draws a lot of power--for example, the electric range, water heater, electric dryer, and air conditioner. You may also find a low-voltage circuit that has a special transformer especially for the doorbell.

You should turn off an individual circuit if someone is, for example, working on an electrical fixture or wallpapering around the outlets. This is also simply a matter of flipping a switch.

Many older homes have fuse boxes instead of a circuit breaker system. Fuses, which are screwed in, control the electricity just as switches or buttons do. The fuse box is most likely in the kitchen or the basement. At the top of the box you may find panels with handles. When working at a fuse box, always wear rubber-soled shoes and stand on dry ground.

In still older systems, next to the fuse box is a knife switch inside a metal box. To shut off the house power, you pull the lever down.

- {ewl uwmf, MVWMF11, home.wmf} 1. single breaker (120 volts)
2. double breaker (240 volts)
3. main breaker*

In case of a temporary power outage

If a circuit "blows" because of an overload or because of defective wiring in an appliance, the switch will turn itself off or the fuse will blow out and the power will go out. To reset the power, turn off whatever appliances were in use, or unplug the questionable appliance, and then go and flip the switch back to "on" or replace the fuse.

To be prepared for an emergency, you must know which circuit controls which outlet or appliance. If you have a circuit breaker system, here is how you can label your control panel with this information. First, turn on all the lights and appliances. Then, one at a time, turn off each circuit breaker (by flipping the switch down), and see what goes out. If you live in an older house, you may have a fuse system. Because these fuses are somewhat riskier to remove, it is recommended that if you have a fuse system you should not do this labeling procedure yourself. Rather, consult an electrician or ask for advice at your local hardware store.

Most rooms have one or perhaps two circuits. A kitchen may have four or more. Label the panel with tied-on tags or sticky labels, or put a well-marked chart inside the control panel door and leave a flashlight near the control panel.

If you have a fuse system, buy some spare fuses. The sizes vary depending on the size of the appliance and the capacity of the house wiring, from 15 to 20 amps, and new ones must be identical to the ones they replace.

If you are still uncertain about dealing with a power outage, contact your utility supplier and ask for help.

If you are sure that the cause of a power failure was an overload (too much electricity was being drawn at the same time), do not turn everything back on all at once. If you have reason to believe the problem may be a faulty wire in the appliance or outlet, call an electrician immediately.

When you call an electrician

For a small electrical repair job, it is unlikely you can get a written bid. The fee in this case is usually based on an hourly labor charge plus the cost of the goods. No matter how small the job, you may have to pay a 1- or 2-hour minimum, so keep a list of small jobs that need attention--a faulty outlet, a fixture problem--and have them all fixed during the same call.

Basket/hamper

Collect dirty clothes in a basket at the bottom of the closet or in a hamper in the bedroom or bathroom. If you have enough room, keep two baskets or hampers--one for color and one for white clothing--where family members can presort their laundry before it goes into the washing machine.

Bleach

There are two kinds of bleach: chlorine bleach and oxygen (all-fabric) bleach. Chlorine bleach is a powerful whitener and brightener but will cause noncolorfast colors to bleed and fade; oxygen bleach is less powerful, but it is safe for color clothing.

Before putting any color clothing in chlorine bleach--even clothing marked "chlorine bleachable" or "colorfast"--you should test for colorfastness. This involves mixing 1 tablespoon of chlorine bleach with half a cup of water and putting a drop of the mixture on a hidden seam of the clothing item that you want to test. After 1 or 2 minutes, blot it dry. If the color has changed, do not use chlorine bleach on that fabric.

Bleach should never be used on silk, wool, spandex, polyurethane, foam, or rubber. In addition, bleach may fade nylon, polyester, and acrylic and may cause holes in cotton, linen, and rayon. Do not pour undiluted bleach on clothes. Instead, add it 4-6 minutes before the end of the wash cycle. Never mix bleach with ammonia, toilet-bowl cleaner, or rust remover because toxic fumes will result. Read all cleaning product labels to make sure you are not inadvertently mixing these solutions.

Bleach will remove mildew, but it is not really a cleaning agent and can damage many materials including chrome, laminates, and plastics. There is no point in leaving anything to soak for long periods of time in bleach, because its action takes place soon after it is added to the wash water. Extended soaking will simply damage the fabric.

Bluing

You can add bluing to the wash to make whites whiter and to get rid of yellowing. Bluing is located in the laundry products section of the supermarket.

Borax

Add borax to the washing machine as a freshener and deodorizer. Borax can be found in the laundry products section of the supermarket.

Cold-water soap or dishwashing liquid

Some items--fragile lingerie, certain scarves, some silk garments, and other delicate pieces--advise "Wash by Hand" on the care label. Use a powdered or liquid cold-water soap or a liquid dishwashing detergent (these are much milder than detergents formulated for use in the washing machine) and use

cool to lukewarm water.

Enzyme presoak products

Enzyme presoak products, such as Biz® or Axion®, boost detergent cleaning power and remove protein stains (e.g., food, drink, bodily fluids, grass) by "digesting" them, much like the enzymes in your body digest food. For greasy and oily stains, see "Prewash Soil and Stain Remover."

Fabric softener

Detergents can leave clothing feeling scratchy, and machine drying can cause static buildup. Fabric softeners eliminate both problems. Softener can come as liquid that is added to the washing machine during the rinse cycle, or it can come as sheets that are tossed into the dryer.

Heavy-duty detergent

Unlike soap, detergents contain synthetics and are formulated so that they will suds up in any kind of water. Some detergents also contain chlorine bleach, or fabric softener, but these combination products are less effective than adding bleach or softener individually.

Prewash soil and stain remover

Prewash soil and stain removers come in stick form, which you can apply to a fresh stain and then launder up to a week later. They also come in a liquid or spray form, which you apply right before you toss the item into the wash. These removers are good for greasy and oily stains. For protein stains, see "Enzyme Presoak Products."

Air conditioning, central

The condensing unit is the part of the air conditioning that sticks up above the ground outside. It is important to check the condensing unit occasionally because if yard debris covers or blocks it, the system will not work properly. When you check the unit, be sure to remove all debris from the condensing unit itself. Then check the condensate drain. The condensate drain is the long pipe that comes out of the top of the central air conditioning unit in your basement. Make sure that this drain is not plugged. Finally, clean the furnace filter. If you do not know where the filter is or how to clean it, ask the serviceperson to show you its location during the annual tune-up.

Air conditioning, room units

During summer the filter and the condenser coils should be cleaned once a month. To clean the filter, remove it from the air conditioning unit and vacuum off any debris. To clean the condenser coils, remove the back cover of the unit and vacuum the coils.

Basement

Inspect the basement for leaks from the outside. If you see any leaks, the area will have to be professionally excavated and sealed. Following a snowfall, remove snow from the window wells.

Chimney

Visually inspect the chimney from the outside to see whether any bricks need repointing. While there's a fire burning, feel the wall from the outside for hot spots. If you feel hot spots then there is probably a flue problem, in which case you must call a serviceperson.

Open the damper lid that seals off the chimney (at the top of the fireplace opening) and see whether your view is clear or whether the flue is blocked off. Also, the damper lid should seal tightly. If you can feel a breeze from the chimney even when the damper is sealed, then the damper lid is not closing correctly. This problem can lead to higher power bills because you will constantly be losing the heat from your house.

All bricks inside the rear and side walls of the fireplace should be intact, and the ashes in the pit should be dry. If they are soggy, the pit may need resealing. You will need a serviceperson to check for corrosion in the interior and also to remove bird nests.

Deck

Wash the deck thoroughly with a commercial product. Ask your hardware dealer to recommend the best product for your specific deck. Every two or three years, coat your deck with a sealer or stain.

Drains

With a little work, you can help prevent the most common causes of plumbing problems. Where you do not have pop-up stoppers, prevent hair buildup by using drain strainers in all the sinks or by putting a piece of netting or rust-proof steel wool into the drain and replace the netting or steel wool periodically. To prevent small children from throwing toys or other objects down the toilet, install a childproofing device designed for this purpose.

You can help keep your drains clear by performing this weekly maintenance with natural ingredients: Pour a ½ cup of baking soda down the drain followed by three cups of boiling water.

For more about drains, see "Common Plumbing Problems."

Dryer, automatic clothes

To ensure maximum dryer efficiency, check the door seal for leaks: close the door, turn on the dryer, and run a tissue around the door. If the tissue is sucked in, the seal needs replacing. To check the vent duct, run a tissue along the length; similarly, if the tissue is "held" at any point, you have a leak. Flexible ducts can be easily replaced with a kit from the store. Intake and exhaust ducts are perforated areas at the rear of the dryer--make sure they are not blocked.

Fire extinguisher

Read and follow maintenance advice in the owner's manual that comes with all UL-listed extinguishers, and check monthly to see whether the extinguisher is charged. Most have a pressure gauge and/or a dial face that clearly indicates an acceptable range of charge (the needle or indicator is in the green zone if acceptable, in the red zone if not). A disposable fire extinguisher can be used only once and must then be discarded and replaced. A rechargeable model, even if used for only one second, must be serviced afterwards.

For more about fire extinguishers, see "Home Safety and Security" under "Health and Safety."

Floors, vinyl or other resilient floors

Solvent-based floor waxes are always used on wooden (unsealed) floors. They can also be used on marble, quarry tile, terrazzo, and brick. But if you use a water-based wax you will find that it eventually builds up, making the floor look dull and yellow. Buy a liquid wax stripper/cleaner (there are many brands on the market) or mix ½ cup of Spic and Span®, two cups of ammonia, and one gallon of clear water. Sponge the solution on or apply it with a floor scrubber/polisher. Then rinse the solution off, and wax the floor. Using a sealer before the floor is rewaxed is extra work but it provides additional protection.

Foundation

Make a visual inspection of the foundation. If weep holes (which allow excess water to escape to keep pressure off the walls) are blocked, remove any yard debris. If the foundation is eroding where the wall meets the earth, call a serviceperson. Mortar joints may crumble as a result of freezing and thawing, in which case they should be repointed. Rotting wood must be replaced with specially treated lumber.

Hairline cracks should be sealed because they are entry points for termites and could encourage leaks; small ones can be fixed with caulking compound and larger ones with cement mortar. Cracks or large spaces between the sill and the top of the foundation wall will need caulking compound or insulating strips to prevent cold air and moisture from coming in.

Check for physical evidence of termites (e.g., piles of discarded wings or mud tunnels along foundation walls, along posts set into the ground, and along water pipes), and call a serviceperson if necessary.

Gutters and downspouts

Clean gutters and downspouts if ice and debris have clogged them. Call a serviceperson to repair seams that have separated or sections that have loosened from the building, or to adjust downspouts that are not guiding water away from the building.

Heating system, forced-air

With a forced-air heating system, the blower is at the bottom of the furnace. Follow the manufacturer's instructions for lubricating the blower or ask a serviceperson to help you locate the ports (small holes) that need lubrication on the motor and fan, as well as the grease cup, which needs annual filling. Find the belt and check for fraying or cracking. Sometimes the belt tension may also need adjusting. Again, ask a serviceperson or follow the manufacturer's instructions to do this.

Heating system, gas furnace

For a gas furnace heating system, a serviceperson should do an annual check for flue leaks, relight the pilot if necessary, replace the filters, and service the blowers. The burner may also need cleaning.

Heating system, oil furnace

With an oil furnace heating system, have a serviceperson check the firing system, clean the ignition electrodes, clean or replace the nozzle, clean or change the oil filter and pump strainer, check the flue connections, and do an annual tune-up. Ask the serviceperson to check combustion efficiency, drafts, and smoke density.

The fan blades are the vanes in the burner blower that create an air stream that (together with the oil) causes combustion. Cleaning the blades increases the efficiency of this process. Use a long-handled brush to reach in and dust them off. If you cannot find the blower, ask the serviceperson to point it out

during the annual tune-up. Instructions for lubricating the burner motor should be found on the housing.

Heating system, steam boiler

With a steam boiler heating system, the glass gauge (which sticks out of the side of the boiler) should be checked to see that water is in the boiler. The water level on the gauge should be at the halfway mark. If the level is low, you may need to add water by opening a fill valve on the inlet pipe. If the level is constantly low, even though you fill the boiler regularly, then the boiler probably has a leak.

The moving needle on the pressure gauge, which is found at the top of the boiler, indicates the actual pressure inside the boiler. The needle should be at the same level as the fixed pointer on the thermostat-type unit (the regulator) beside it. If it is higher, turn the boiler off and call a serviceworker. Locate the relief valve, also on the top of the boiler, and just lift the lever to make sure it moves freely.

To flush rust, find the blow-off valve, which is probably adjacent to the gauge glass and has a pipe extending down from it, and hook a bucket below it. To carry out the built-up rust, open the valve and run the water until the water runs clear.

- {ewl uwmf, MVWMF11, home.wmf} 1. water supply*
- 2. pressure release safety valve*
- 3. pressure safety control*
- 4. pressure gauge*
- 5. water level gauge*
- 6. boiler section*
- 7. drain*
- 8. supply to main system*
- 9. return*
- 10. shut off*
- 11. burner section*

Humidifier

Clean out mineral deposits and dirt in a freestanding humidifier unit by cleaning the reservoir pan as described in the manufacturer's instructions. You will also have to follow manufacturer's instructions for removing and inspecting the hose (which may be clogged or cracked) and the pad, the part that stays wet and moves like a belt and could get clogged. In a furnace unit, you may need to replace the filter.

Outdoor faucets

To prepare outdoor faucets for winter, close the shut-off valve on outdoor faucets and then let the water drain out. If pipes cannot be drained, wrap them with electrical heating cable from the hardware store. This will help

protect the pipes from damage due to freezing.

Outdoor metal items

Clean off grass and dirt from outdoor metal items and then wipe them down. Rust can be removed with products such as Zud® or Whink®. To protect metal items from rust, coat items lightly with engine oil. Do not store items under plastic, which traps moisture and can lead to rusting; instead, use paper grocery bags or newspapers.

Patio doors, sliding

Remove debris from the sliding patio doors and door tracks by wiping with a cloth dipped in detergent and water; rinse. Lubricate the tracks with graphite.

Radiators

Using a screwdriver or special key, slightly unscrew the air vent on the side of the radiator, toward the top, and let water drain into a pan; when the water flows smoothly, close the valve. This procedure releases trapped air and permits hot liquids and gases to flow through the unit.

Dust your radiators regularly so that dust doesn't hinder the passage of heat through the coils. A dust-free radiator is much more energy efficient than a dusty one.

Refrigerator

Accumulated dust and dirt can hinder the air circulation in your refrigerator. To keep the refrigerator running more efficiently clean dust and dirt from under the refrigerator and from the coils.

Septic tank

Every two to three years, have a serviceperson clean the septic tank.

Sewer house trap plug

Make sure the sewer house trap plug is in place and tightly closed. It is probably located under a wooden or metal cover in the basement right next to where the sewer pipe goes through the building wall.

Shingles, wood

Clean wood shingles with a push broom or pressure washer. Every three to five years, coat shingles with a sealer.

Siding, aluminum

Wash aluminum siding with a solution of one cup of all-purpose detergent to one gallon of water. Apply the solution with a power sprayer, and then rinse. If there is mildew, use a mildew remover or solution of $\frac{3}{4}$ cup of bleach and one gallon of water. Wet the surface (but not in direct sunlight, because the

solution will evaporate too quickly), and rinse thoroughly or else corrosion may occur. Some solutions may also be used on a tile roof, brick, or stucco.

Siding, wood

Paint wood siding if shabby, blistering, or peeling. Nail down loose boards, and check for wood decay. If a full exterior painting is needed or if wood rot needs attention, call a serviceperson.

Smoke alarm

To be on the safe side, test the batteries in the smoke alarm at least once a month, and change them once a year.

Storm windows and doors

Rub storm windows and doors with fine steel wool to remove corrosion, spray the tracks with silicone lubricant, and use weather-stripping if necessary.

Stove exhaust fan and fan filter

Clean the stove exhaust fan monthly and change the filter every six months, or when the filter becomes dirty. See the stove manufacturer's instructions for further advice.

Stucco

Repair hairline cracks with a product that your hardware dealer recommends, and then cover the cracks with house paint if desired. For large cracks, you may want to call a serviceperson. To remove mildew, use a mildew remover or a solution of $\frac{3}{4}$ cup of bleach to one gallon of water. Wet the surface, and rinse thoroughly or else corrosion may occur. Some solutions may also be used on brick, aluminum siding, or a tile roof.

Trees

Trim branches that might fall on or near the house in a storm. The power company will remove, for free, dead branches that are along power lines. Also, keep trees and bushes trimmed at least one foot away from your house to reduce the risk of insects invading your home.

Washing machine

The drain hose of your washing machine usually connects with a spring-clip to the bottom rear of the machine. If you release the clips, you will see a filter inside. Check with your manufacturer to find out where to get a replacement part if necessary.

Well

If you get your water from a well, have the water quality checked annually by your local health department. There is most likely a charge for the quality check, but it will be less expensive if you collect the sample yourself. Call the local health department for information on how to properly collect the

sample. If your water ever smells or tastes unusual, or if the water color changes, check with the health department immediately.

To keep your grounds, garage, and walkways in good shape, you'll need the right tools. High-quality tools are a good investment because they tend to work better and last longer. Signs of high-quality tools include wooden handles, and hand-forged or tempered steel blades that fit firmly and snugly into the shaft. The tool should be comfortable to hold; rubberized vinyl grips may make a difference. Dipping the handles into yellow or red paint will make your tools easier to locate if they're left in the yard.

If you have a small yard with only a few trees and shrubs, manual tools should be sufficient. Although handtools require more effort than power tools, high-quality hand tools are ecologically sound, long-lasting, low-maintenance, and less expensive to buy and operate. They require only cleaning and wiping with linseed oil to keep them in good condition.

Brooms

Straight brooms made with flexible plastic, nylon, or straw bristles are more versatile and easier to use than push brooms, but push brooms do the job faster on large walks and garages. Choose an oil- and water-resistant push broom with stiff bristles. Polypropylene bristles are effective for sweeping stairs, patios, and smooth walks, but if you have only a small patio or balcony, an old-fashioned straw broom will do the trick.

Chain saw

If your property is heavily wooded or if you plan to cut your own firewood, you may need a chain saw. Chain saws are not appropriate for trimming tree branches but are good for close-to-the-ground work, because you need to have a steady place to stand when you use them. Pass over used saws and outdated models for new models with built-in safety features, including antikick devices and chain and bar brakes.

Chain saws come in various sizes, from lightweight (6-9 pounds) babies to 18-pound heavyweights with 4-cubic-inch engine displacements and 24-inch bar lengths. The engine and bar sizes you need depend on size of the wood you need to cut and how much cutting you have to do. The size of the log you can cut is determined by doubling the size of the bar. A 12-inch bar is generally recommended as a minimum.

Some rechargeable, lightweight electric chain saws can handle up to six cords of wood a year. If you're cutting more than that amount, you'll need a larger, gas-powered saw. The bigger the saw, the more safety and comfort accessories you'll need. These accessories include a helmet, goggles, hearing protectors, and specially padded gloves and pants.

Cultivator

A cultivator is used to loosen soil and to destroy weeds around growing plants. If you're planting long rows of vegetables in medium to hard soil, you need a long-handled cultivator with carbon steel prongs; otherwise, a three-prong hand cultivator should be sufficient.

File

Almost anything with a blade, from a garden spade to hedge clippers, will need periodic sharpening. A 9½-inch (25 cm) flat file is an all-purpose file that should suffice. For cutting shrubs and roses--when the cut must be especially clean--hone the blade with a sharpening stone and extra-fine carbon sandpaper.

Garden gloves

For handling seedlings and delicate small plants, tight-fitting rubber or vinyl-palmed cloth gloves are preferred. They provide a good grip and resist moisture longer than plain cotton. For all-around garden chores, leather gloves are best because they are water-resistant and protect hands better from grit and thorns. Deerskin or elk skin is more supple and less bulky than cowhide; goatskin is expensive, but is very strong, can tolerate moisture, stretches to fit, and is thin enough to handle even delicate chores.

Hoe

A hoe with a solid square blade is used to break up clumps of freshly turned earth and cultivate vegetable garden rows. A Dutch hoe has a triangular shape, with a triangle cutout in the center and a slim blade beneath, making soil less resistant to the action of the hoe. A square hoe with a round hole in the center, generally used to mix cement, can also be used in the garden.

Hose

Pay extra for a garden hose that won't kink, bend, crack in the cold, burst in the heat, or rot away outdoors and you'll get long service and ease of handling. Hoses composed of different layers of reinforced rubber, synthetic fabric, and vinyl tend be of good quality. Look for a hose with a lifetime guarantee.

Ladder

Although wood ladders are less expensive than aluminum ladders, they are heavier. Aluminum ladders are steady, weigh less, and hold up over time but cannot be used when working with electric tools or around powerlines. Ladders are given work-load ratings based on the number of pounds they can support. A Type III will support a 225-pound (102 kg) load but has been tested to carry 4 times that weight. Regardless of its rating, however, do not overload a ladder or push it to its limits. Be sure that the ladder you buy can carry your weight plus the weight of the materials you're using. Also be sure to follow all warning labels on the ladder.

Lawn mower, reel

For lawns under an eighth of an acre you can use a three- to five-blade manual mower. In fact, to get a very clean cut, a high-quality five-blade reel mower is often used on golf course putting greens. Reel mowers generally need adjustment several times during the season. Some parts of the mower

must be oiled regularly, the blades and cutting edge need periodic sharpening, and the blades must be set at the desired height and tightened against the cutting edge.

Lawn mower and mulcher, power

For a lawn that's flat surfaced, evenly seeded, and less than an eighth of an acre, you may prefer an electric mower with a rechargeable battery over a reel mower. For larger lawns, a gas-powered rotary mower with a single, center-mounted blade, a 5-horsepower minimum, and a self-propelled, overhead valve-type engine is a necessity. If your lawn is half an acre or more, you may want a riding mower.

Many communities now refuse to collect grass clippings because landfills and dumps are overcrowded. A good alternative is to mulch or dispose of clippings in a compost heap, so a combination mower that can either bag or mulch grass is a practical choice. Mulching mowers cut faster, chopping the grass many times over before it hits the ground. The finely cut clippings will dry out and decompose quickly. Rich in nitrogen, they can greatly reduce the need for lawn fertilizer. Leaves, however, do not decompose at the same rate as grass, and the mulch of leaves that are too thick and hold too much moisture could damage your lawn. The bagging option comes in handy when the grass is wet or when it has been allowed to grow too long, because these conditions make mulching difficult for your mower. The bagging option also allows you to use the mower to collect fallen wet leaves for compost.

Pruning saw

For pruning trees and hard-to-reach branches without using a ladder, a long-necked pruning saw or a TK is best. A TK resembles a long bicycle chain with a serrated edge and a handle at both ends.

Rakes

A bow rake, also called a straight rake, is used in large gardens to smooth surfaces between rows, rake small stones from the soil, or put a smooth finish on a pebbled drive or walk. Bow rakes come in various sizes to fit the hand.

A lightweight fan or lawn rake with a wooden handle will clean up light debris such as leaves and cut grass. A wide fan will cover more territory, but a narrow one will fit into tight spots and around plants without snagging. Metal prongs or tines are good for rough lawns and all outdoor surfaces, but they cannot be reshaped once bent; bamboo or synthetic tines are durable as well as gentler to fine lawns.

A hand-held fan rake, also called a flower rake, is excellent for small spaces and for working around flowers without damaging them.

Shears and trimmers

Sharp, hand-held shears are for trimming or shaping ornamental shrubs with

light, thin stems like hedges, bush roses, climbers, ivy, and delicate evergreens. For pruning flowers and small woody shrubs with narrow stems like roses, select pruning shears with a torque spring mechanism. For thicker stems (and branches up to 2 inches thick), you need more leverage, so choose a heavier-duty pruning tool with longer handles (called a lopper) and a ratchet-type mechanism to help make a clean cut.

Trimming lawn edges along paths and around beds requires grass shears or, for a bigger garden, cordless power trimmers or shears. These trimmers generally have long-handles so that you don't have to bend or kneel. They do, however, require cautious handling: power cords and rapidly moving trimmer parts can be dangerous. Spool line electric trimmers enable you to get closer to walls, around trees, and over uneven ground a lot easier than shear trimmers, which is why some people prefer them, but the spool line often needs replacing and may break.

Snow shovel

If you live in an area where there are only one or two light to moderate (2-5 inches) snowfalls per year, and if you don't have a driveway to clear, a sturdy snow shovel might be all you need. A flat-bottomed, heavy-gauge, rust-resistant steel shovel can scoop up snow as well as heavy garden debris, sand, gravel, and coal.

Shovels made especially for snow come in two basic designs. Long-handled shovels with a curved steel blade are for pushing heavy, wet snow, whereas heavy-duty aluminum shovels with wide, gently curved blades are for lighter snow. Grooved blades are better than smooth ones because snow won't stick to them. Applying a layer of silicone spray or car wax to a clean shovel reduces sticking.

Snow shovel, power

If snow is frequent and deep in your neighborhood and the area to be cleared is large, you may need heavier equipment. Power shovels are fine for clearing 12-20-inch-wide paths and sidewalks in areas where the snowfall generally doesn't exceed 5 inches. A lightweight (12-15 pounds) electric power shovel can handle 2 or 3 inches of snow, whereas a paddle-style power shovel can handle from 2 to 5 inches; however, gas and electric power shovels do not blow or throw snow. The power turns the wheels, and a front-mounted blade pushes the snow while you guide it. Depending on the terrain and the amount of snow, however, maneuvering a power shovel can be as arduous a task as using an old-fashioned shovel. If you already have a riding mower, you may be able to buy a snow removal attachment and have a mini snow plow.

Snow thrower

For extremely heavy work in very large areas, you may need more powerful equipment. A self-propelled, one-stage snow thrower is suitable for 4-8

inches (10-20 cm) of snow. Its churning action picks up snow and throws it in one stage. Snow deeper than 6 inches (15 cm) requires a two-stage system with a power-assisted blower. Features to look for in snow-removal power equipment include electric starters, easily adjustable chutes, and easy-to-manipulate gear shifts. Some larger snowblower models are equipped with tractor treads. Tracks are suited to hilly or rough terrain but they are hard to maneuver, especially in tight spots. Electric starters are more reliable than recoil systems and throwers with variable speeds are less likely to jam. Chutes should rotate so that you can get close to foundation walls and garage doors.

Spade

To plant or transplant bushes, shrubs, and trees, you need a spade with a sharp blade filed to a cutting edge. For digging holes deeper than 1 foot, you need a long-handled spade. Pointed spades are best for compacted soils such as clay, whereas straight-edged spades can also be used to scoop up debris.

Trowel

If you're only repotting lightweight plants into light soil and don't need to dig a hole deeper than 6-8 inches (15-20 cm), a short-handled, solid aluminum trowel will do. The handle on most trowels doubles as a dibble--a slender, solid, cone-shaped wood or metal device for poking neat holes in fairly loose soil prior to planting seeds or seedlings. If you frequently plant and transplant a lot of medium- to large-sized flowers that require a hole deeper than 8 inches (20 cm), you need a fairly hefty trowel with a long handle and a steel-forged blade.

Watering can

Galvanized steel, zinc, or stiff, heavyweight rubberized vinyl watering cans are best. Long-spouted designs with handles on the top and side are easier to lift and pour. The spray fan on the end of the spout should screw on and off so that it can be removed for when you want to pour water more quickly.

Avoiding plumber calls

With a little work, you can help prevent the most common causes of plumbing problems. Where you do not have pop-up stoppers, prevent hair buildup by using drain strainers in all the sinks or by putting a piece of netting or rust-proof steel wool into the drain and replace the netting or steel wool periodically. To prevent small children from throwing toys or other objects down the toilet, install a childproofing device designed for this purpose.

Never throw used condoms, tampons or inserters, sanitary napkins, disposable diapers, paper towels, or napkins into the toilet. Lying at the right angle, a condom may fill up like a balloon. A tampon, which is designed to absorb moisture, may swell up and wedge into place so that it becomes stuck in the drain.

You can help keep your drains clear by performing this weekly maintenance with natural ingredients: Pour a ½ cup of baking soda down the drain followed by three cups of boiling water.

When it comes to small plumbing jobs, it is unlikely you will get a bid from a professional plumber. The fee is usually based on an hourly labor charge plus the cost of goods. No matter how small the job, you may have to pay a 1- or 2-hour minimum, so keep a list of small jobs that need attention--a leaky faucet, a toilet tank that sweats too much, a hot water regulator that's set too high--and have them all fixed during the same call.

Unblocking a drain

If all the drains are sluggish or blocked, you need a plumber to clean out the main drain. But if only one sink is clogged, you can unclog it yourself.

First, remove all visible debris from the drain and make sure that the drain stopper, if there is one, is not getting in the way. Then use a plunger to clear the drain. If you can't clear the drain with a plunger, you can try using a drain cleaner or a plumber's snake.

Using a plunger

First block off all other outlets such as the overflow opening with wet rags. Make sure that there is enough water to cover the top of the plunger cup. Put the plunger cup over the drain (the cup should be large enough to completely cover the drain) and press the handle up and down, pressing down smoothly and jerking it up. If the drain is not unclogged in five minutes, then you can try using a drain cleaner or a plumber's snake.

Using a drain cleaner

Choose drain cleaners carefully. If a drain is clogged with grease, do not use a lye-based (sodium hydroxide) unclogger; the lye and grease will combine to make a hard cake of soap. Instead, use an unclogger that is meant to work on grease. Liquid uncloggers are preferable to powder uncloggers

because powder creates heat, which can damage pipes. Remember that you cannot use a chemical cleaner if the drain is totally blocked. Carefully follow the safety instructions for the drain cleaner.

For small clogs, you can try this natural alternative to a commercial drain cleaner: pour a mixture of a ½ cup of baking soda followed by a ½ cup of vinegar down the drain; after fifteen minutes flush the drain with hot water.

Using a plumber's snake

Another alternative to using a commercial drain cleaner is to use a plumber's snake. A plumber's snake is a flexible metal coil with a pointed end that you can guide into the drain. By turning the handle on the plumber's snake, you can guide the pointed end down the drain and into the obstruction to quickly clear the drain. Ask at your local hardware store for more information.

Unstopping a toilet

To unstop a toilet, it is best to use an actual toilet plunger, as opposed to a conventional sink plunger. A toilet plunger has an extra flange, which gives it a better seal in the toilet. Put the plunger down in the bowl and plunge to reduce the water level as much as possible. Then remove the plunger and flush the toilet. When the water has started to refill the bowl, put the plunger back into place, pump rapidly and hard, and then lift the plunger again. The toilet should empty out.

{ewl uwmf, MVWWMF11, home.wmf}

1. sink plunger
2. toilet plunger

If the plunger does not unstop the toilet, you can try using a closet auger to snag the obstruction. A closet auger is basically a plumber's snake designed specifically for toilets. As you crank a closet auger, the pointed end snakes down the pipe until it eventually pushes through the obstruction. Before using a closet auger, be sure to read the instructions for it.

Alcohol on carpet

Blot. Mix 1 teaspoon each of liquid dishwashing detergent and white vinegar with 1 quart (.95 litres) of warm water, apply, rinse, and blot dry.

Blood on carpet

Flush with cold water. Blot. Repeat several times or until stain fades. Blot. Mix 1 teaspoon each of liquid dishwashing detergent and white vinegar with 1 quart (.95 litres) of warm water, apply, rinse, and blot. Apply dry-cleaning fluid. When carpet is dry, brush it to raise pile. If stain is not gone, repeat.

Blood on fabric

Use cold water or hydrogen peroxide on fresh stains.

Butter on carpet

Apply dry-cleaning fluid to a damp towel, and blot stain. Repeat if necessary. Then, apply water with damp towel, and blot thoroughly with clean towel.

Coffee on carpet

Blot. Mix 1 teaspoon each of liquid dishwashing detergent and white vinegar with 1 quart (.95 litres) of warm water, apply, rinse, and blot. Apply dry-cleaning fluid. When carpet is dry, brush it to raise pile. If stain is not gone, repeat.

Color bleeding on fabric

If you put a colored item in the wash and it runs onto white fabrics, get a color-removing product (in the dyes section of your fabric or notions store). If a color runs onto another colored fabric, soak it in all-fabric bleach or enzyme presoak and then wash as usual.

Crayon on carpet or fabric

See instructions under "Wax on carpet or fabric." If you have any further problems, call (800) CRAYOLA.

Cream on carpet

Blot. Mix 1 teaspoon each of liquid dishwashing detergent and white vinegar with 1 quart (.95 litres) of warm water, apply, rinse, and blot. Apply dry-cleaning fluid. When carpet is dry, brush it to raise pile. If stain is not gone, repeat.

Deodorant on fabric

Rub heavy-duty liquid detergent on stain. Zinc salts or aluminum may cause permanent staining.

Feces on carpet

Blot. Mix 1 teaspoon each of liquid dishwashing detergent and white vinegar

with 1 quart (.95 litres) of warm water, apply, rinse, and blot dry.

Food and drink stains on fabric

Because food and drink stains are usually organic stains, they can be removed by an effective heavy-duty detergent. Rub some detergent directly into the stain and then launder as usual. Use chlorine bleach on fabrics that are colorfast. Stubborn stains should be soaked in an enzyme presoak (follow instructions).

Food spills burned onto stove

Pour a few drops of boiling water on caked-on food. When it has softened, scrape it off with a credit card.

Fruit juice on carpet

Blot. Mix 1 teaspoon each of liquid dishwashing detergent and white vinegar with 1 quart (.95 litres) of warm water, apply, rinse, and blot dry.

Grease on fabric

Use a petroleum-based solvent pretreatment spray, and then launder with heavy-duty detergent.

Grease on laminate countertops

Use rubbing alcohol; or sprinkle on baking soda, leave briefly, rub gently, and rinse.

Grease on wall coverings

Mix baking soda and dry-cleaning fluid to make a paste. Apply evenly to wall from the outside of the stain to the inside. Once dry, wipe off with a soft brush. Repeat 2 or 3 times if necessary.

Heat marks, black, on furniture

Bleach the mark by rubbing it with a cut lemon. The surface will then have to be recolored with commercial wood stain, wood polish, or shoe polish.

Heat marks, white, on wood furniture

Rub in some salad oil. Or use a paste of oil and pumice powder, rubbing with the grain. Surface will then have to be recolored with commercial wood stain, wood polish, or shoe polish.

Ice cream on carpet

Blot. Mix 1 teaspoon each of liquid dishwashing detergent and white vinegar with 1 quart (.95 litres) of warm water, apply, rinse, and blot. Apply a dry-cleaning fluid. When carpet is dry, brush it to raise pile. If stain is not gone, repeat.

Ink, ballpoint, on plastic, leather, or vinyl

Stains less than 12 hours old can be removed easily with a soft cloth soaked in wood alcohol. Do not rub, rather pat and lift. More patting may be required with older stains; alternate the application of wood alcohol with soap and water.

Ink, ballpoint, on washable fabric

Remove a small stain by combining a tablespoon of heavy-duty detergent and a quart of water, soak stain for 24 hours, and then wash as usual. Spots larger than a dime on rayon, acetate, or Celanese should be dry-cleaned; spots this size on other fabrics may be soaked in wood (methyl) alcohol for 15-30 minutes and then laundered.

Ink, marker (washable), on nonfabric surface

If water does not remove, use a cloth moistened with wood alcohol.

Ink, marker (washable), on washable fabric

Hold under a cold-water faucet to eliminate dye for up to 15 minutes, if necessary, while rubbing. Mix a tablespoon of heavy-duty detergent into a quart of water, soak the fabric in this mixture for 24 hours, and then launder as usual.

Lipstick on fabric

Rub with a bit of toothpaste. Or, depending on the fabric, try a dry-cleaning fluid and then wash with heavy-duty detergent and chlorine, or with an all-purpose bleach.

Mildew on fabric

Brush off mildew (do this outside, so as not to spread spores), then wash with heavy-duty detergent plus chlorine bleach if fabric is bleachable. All-purpose bleach for colored fabrics will not be as effective.

Mildew on tile

Use a commercial tile cleaner or a bleach and water solution (4 parts water to 1 part bleach). Wet the surface, spray on the bleach-water solution, and then wipe.

Milk on carpet

Blot. Mix 1 teaspoon each of liquid dishwashing detergent and white vinegar with 1 quart (.95 litres) of warm water, apply, rinse, and blot. Apply a dry-cleaning fluid. When carpet is dry, brush it to raise pile. If stain is not gone, repeat.

Mineral deposits on bathroom fixtures

Fixtures can be cleaned with commercial cleaners; home remedies include putting vinegar or lemon juice on the stain until the stain is gone. Repeat if necessary. To clean stained faucet or showerheads, fill a small plastic bag

with vinegar, tie it onto the faucet or showerhead so that the liquid covers it, and remove the bag in 2 hours. Repeat if necessary.

Oil on fabric

Use a petroleum-based solvent pretreatment spray, and then launder with heavy-duty detergent.

Paint, latex, on fabric

Soak fresh stain in cold water, and then wash in cool water with heavy-duty detergent. Pretreat with heavy-duty liquid detergent and rinse. If stain remains, soak it in a diluted solution of powdered all-fabric bleach and then wash as usual.

Paint, oil-based, on fabric

Apply thinner recommended for paint (generally turpentine or rubbing alcohol) onto the stain. When stain is soft, wash it in heavy-duty detergent.

Rust on fabric

Use a rust-removing product such as Whink® or Zud®, or try some lemon juice rubbed on the spot and left in the sun. (Either of these solutions will bleach fabric, so use on white fabric only.)

Scuff marks on hardwood floors

A fine steel wool pad dipped in floor cleaner (either a wax or cream product) will remove scuff marks on wood floors.

Scuff marks on vinyl flooring

Sprinkle on baking soda, and rub off with a dry sponge. For more about dry sponges, see "Cleaning Supplies" under "Cleaning."

Scuffs and fingerprints on painted walls

An all-purpose cleaner or diluted dishwashing liquid can do the job. If you need gentle abrasion for a stubborn spot on oil-based paint, use baking soda or fine steel wool.

Scuffs on nonwashable wallpaper

Try using a commercial dough-type wallpaper cleaner or brushing with a ball of crustless, stale bread.

Scuffs on resilient flooring

A dry sponge or a slightly damp sponge sprinkled with baking soda will remove most scuffs from vinyl flooring. For more about dry sponges, see "Cleaning Supplies" under "Cleaning."

Scuffs on scrubbable wallpaper

Use baking soda on a damp sponge.

Scuffs on spongeable wallpaper

Try a commercial dough-type wallpaper cleaner or a ball of crustless, stale bread.

Scuffs or mystery stains on wood paneling

Use furniture polish on waxed wood or mild detergent mixed with water on sealed paneling. Any treatment may discolor wood and require the application of new wood stain to restore color.

Soap scum and water deposits on shower walls

Use a glass cleaner, mild abrasive, or prewash spray on soap scum and water deposits. If hard water has left lime and mineral deposits, use a commercial lime remover that contains mild acids. Wipe doors dry, apply a layer of car wax, and when it dries to a haze buff the door until shiny. Wiping doors and walls after each use helps to keep them scum-free.

Soft drinks on carpet

Blot. Mix 1 teaspoon each of liquid dishwashing detergent and white vinegar with 1 quart (.95 litres) of warm water, apply, rinse, and blot dry.

Tar on fabric

Use a petroleum-based solvent pretreatment spray and then launder with heavy-duty detergent.

Tarnish on brass or copper

Fill a spray bottle with vinegar, and stir in a teaspoon of salt. Spray the mixture onto the brass or copper item and rub. WARNING: Do not use this on lacquered brass or copper because it will remove the finish.

Tea on carpet

Blot. Mix 1 teaspoon each of liquid dishwashing detergent and white vinegar with 1 quart (.95 litres) of warm water, apply, rinse, and blot. Apply dry-cleaning fluid. When carpet is dry, brush it to raise pile. If stain is not gone, repeat.

Tea on laminate countertop

Wet surface and sprinkle on baking soda. Wait 5 minutes, then rub stain gently and rinse.

Toilet bowl stains

To clean really bad toilet bowl stains, first pour a bucket of water into the toilet bowl. The level of water in the bowl will actually go down, and the bowl will almost empty out. This way you can apply cleaner directly to the stains, and the cleaner won't be diluted by the water in the bowl.

Soak white paper towels in bleach and leave them in the bowl, or pour a

bucket of water into the toilet (which causes it to empty out) and then apply a bowl cleaner with a toilet brush.

WARNING: Never mix this type of cleaner with chlorine bleach or with products containing chlorine bleach, because toxic fumes can result. If ring remains, use a wet pumice stone (also called a scouring stick).

Vomit on carpet

Scrape dried matter with a knife or credit card. Mix 1 teaspoon each of liquid dishwashing detergent and white vinegar with 1 quart (.95 litres) of warm water, apply, rinse, and blot dry. If matter is wet, remove excess, use the preceding detergent-water-vinegar solution, rinse, blot, and then apply a dry-cleaning fluid.

Water marks, black, on furniture

Rub gently with fine steel wool, going with the grain. The surface will then have to be recolored with commercial wood stain, wood polish, or shoe polish and then repolish or oil.

Water marks, white, on furniture

Rub gently with fine steel wool and oil, going with the grain. Mix half and half linseed oil and gum turpentine, apply, and let stand for 2 hours. Remove with vinegar.

Wax on carpet or fabric

Use a hair dryer to melt wax and blot it with an unprinted paper towel, or place an unprinted brown garbage bag over the spot to act as a blotter, run a warm iron over it, and keep moving the bag to find a fresh spot to absorb wax until it's gone. If stain remains, use a dry-cleaning fluid, rub in heavy-duty detergent, and then launder with an all-fabric bleach.

Wine on carpet

Blot. Mix 1 teaspoon each of liquid dishwashing detergent and white vinegar with 1 quart (.95 litres) of warm water, apply, rinse, and blot dry.

Wine on washable fabric

Rinse under cold water immediately. If wine is red, apply hydrogen peroxide and a few drops of ammonia. Soak, rinse, rub in heavy-duty laundry detergent, and then launder as usual.

Baking soda

Baking soda is a very gentle abrasive that can be used on surfaces that other scouring cleaners might scratch.

Bleach

There are two kinds of bleach: chlorine bleach and oxygen, or all-fabric, bleach. Chlorine bleach is a powerful whitener and brightener but will cause noncolorfast colors to bleed and fade. Oxygen bleach is less powerful, but is safe for color clothing.

Before putting any color clothing in chlorine bleach--even clothing marked "chlorine bleachable" or "colorfast"--you should test for colorfastness. This involves mixing 1 tablespoon of chlorine bleach with half a cup of water and putting a drop of the mixture on a hidden seam of the clothing item to test. After 1 or 2 minutes, blot it dry. If the color has changed, do not use chlorine bleach on that fabric.

Bleach should never be used on silk, wool, spandex, polyurethane, foam, or rubber. In addition, bleach may fade nylon, polyester, and acrylic and may cause holes in cotton, linen, and rayon. Do not pour undiluted bleach on clothes. Instead, add it 4-6 minutes before the end of the wash cycle. Never mix bleach with ammonia, toilet-bowl cleaner, or rust remover because toxic fumes will result. Read all cleaning product labels to make sure you are not inadvertently mixing these solutions. Bleach will remove mildew, but it is not really a cleaning agent and can damage many materials including chrome, laminates, and plastics. There is no point in leaving anything to soak for long periods of time in bleach, because its action takes place soon after it is added to the wash water. Extended soaking will simply damage the fabric.

Brighteners

Located in the dyes section of a fabric store or notion department, brighteners may restore whiteness to faded white nylon and other white items.

Color removers

Located in the dyes section of a fabric store or notions department, color removers are used when colors have "run" or "bled" onto white fabrics.

Cotton material, absorbent white; or white paper towels

Blot up as much of the spill as you can right away so that you have less of a problem later. Frequently, cold water alone can remove a fresh stain. Do not use hot water, which may set the stain. If you are removing a set-in stain, put the cotton or towels underneath to absorb surface liquid and, if you are using a solvent, additional cotton or toweling to apply it. Afterwards rinse and then wash items that can be laundered; others should be left to air-dry.

Dishwashing detergent, liquid

Liquid dishwashing detergent--not the kind used for an automatic dishwasher--is frequently used in small concentrations (about 1 tablespoon to a quart of water) for fabric or carpet stain removal.

Dry-cleaning fluid or spot lifter

Dry-cleaning fluid is especially effective in the removal of greasy stains and is the only solution for nonwashable fabrics. On dry-clean-only fabrics, a water-based spot remover can cause dye to run or leave a ring. Be sure to follow the label cautions, because solvents are toxic by inhalation, ingestion, and skin absorption.

Enzyme presoak products

Enzyme presoak products, such as Biz® or Axion®, boost detergent cleaning power and remove protein stains (e.g., food, drink, body fluids, grass) by "digesting" them, much like the enzymes in your body digest food. For information on greasy and oily stains, see "Prewash Soil and Stain Remover" below.

Heavy-duty detergent

Unlike soap, detergents contain synthetics and are formulated so that they will suds up in any kind of water. Some detergents also contain chlorine bleach, or fabric softener, but these combination products are less effective than adding bleach or softener individually.

Household ammonia

Ammonia is a weak acid effective for cleaning and deodorizing. CAUTION: Ammonia should not be used on aluminum.

Hydrogen peroxide

Although set-in blood is very difficult to remove, hydrogen peroxide (3% solution, sold as an antiseptic) can be helpful in removing a fresh stain.

Lemon juice

Although lemon juice will bleach fabrics (and therefore should not be used on nonwhite materials), it is a natural acid and is therefore an excellent stain remover for many jobs around the house.

Lime- or mineral-deposit remover, commercial

For soap scum and mineral buildup from hard water, you may need a commercial lime- or mineral-deposit remover product.

Nail-polish remover

For stain removal, you need a nail-polish remover that contains acetate.

Paint thinner or turpentine

To remove paint stains, try paint thinner or turpentine.

Paper towels

Whenever working with stains on fabric or carpeting, do any blotting with white toweling or unprinted white paper towels; otherwise, you may transfer the color of the paper dye to the stained area.

Plastic applicator bottle

To apply heavy-duty liquid detergent directly to a stain, pour some detergent into a small bottle such as a plastic mustard dispenser or a clean liquid soap dispenser, and use this bottle to more easily dispense the detergent.

Prewash soil and stain remover

Prewash soil and stain removers come in stick form, which you can apply to a fresh stain and then launder up to a week later. They also come in a liquid or spray form, which you apply right before you toss the item into the wash. These removers are good for greasy and oily stains. For information on protein stains, see "Enzyme presoak products" above.

Pumice stone

If brown stains on the toilet remain, a wet pumice stone can remove them.

Rust remover, commercial

Rust removers work on hard surfaces and also on fabrics, but be aware that most of them remove color. Never use rust remover with bleach.

Steel wool

Steel wool pads without soap are abrasive. Used without liquid, they may scratch some surfaces.

Toilet-bowl cleaner

While ordinary cleanser will remove some toilet stains, for very stubborn ones you may need a toilet-bowl cleaner designed for this purpose. These cleaners are strong and very toxic. One alternative is to try cleaning the stain with a wet pumice stone.

Toothpaste, nongel

Like baking soda, nongel toothpaste is a very gentle abrasive.

Vinegar, distilled white

Ordinary household vinegar is a mild acid and an effective but gentle cleaner. It may remove color.

Wood alcohol

Also known as methanol, wood spirits, and methyl alcohol, wood alcohol is a solvent made from the distillation of wood and is used, among other things, as a solvent for dyes. It is flammable, toxic, and has bad-smelling fumes, so use it in a well-ventilated area, wear gloves, and observe fire safety

precautions.

Anchors

An anchor is a sheathe made of plastic or nylon that holds a screw into a plaster or masonry wall. A hole is drilled, the anchor is slipped inside, and then the screw is pushed into the anchor and turned into place. As the screw is tightened, the anchor is wedged firmly into the wall. A hollow-wall anchor is used to hold lighter loads onto plasterboard. If you live in an older building, you may be discouraged from drilling into plaster. Instead, there may be a picture hanging molding, which is a narrow strip of wood from which you can secure hooks.

Bolts

A bolt is a heavy-duty fastener with a round top and a threaded bottom. It passes through one side of an item and is secured on the other side by a six-sided, doughnut-shaped nut, which is tightened with a wrench. A toggle bolt is used to hang heavy fixtures on hollow walls: a hole is drilled, the toggle bolt is pushed through, and the wing-like toggles at its end snap open to hold the bolt in place.

Chisels

Wood chisels are used in woodworking for cutting and smoothing wood joints, whereas cold chisels cut rusted bolts and other metals and stones. A 6-8-inch butt chisel will remove a large amount of wood, and a thin-bladed paring chisel is used for fine work, but if you are not a woodworker and simply want an all-purpose chisel, get a pocket chisel 9½-10½ inches long. A flat chisel, with a wedged end, can be used to ease out bolts that are stuck in place; shove it into place and hit the end with a hammer.

Combination square

A combination square is a measuring tool that has a sliding portion with a right-angled measure to guide you in making square joints and a 45-degree side to help you make mitred joints (as in a picture frame). A combination square may also have a built-in level.

Drill

For hanging lightweight items, a nail is fine, but a properly installed screw fits into the wall more securely and is a must when you hang heavy objects. With an electric drill, you will do a better, faster, neater, and safer job than with a manual drill. Drills come in ¼-inch, 3/8-inch, and 1/2-inch sizes, depending on the largest bit (or tip) the drill can hold. The 1/2-inch drill is the strongest, but a 3/8-inch variable-speed drill is most versatile and practical for home use because you need to use a high speed for drilling wood and a lower speed for metal. Cordless drills are convenient, but those with cords are generally more powerful.

Drill bits

Different sizes and types of bits are used to drill different-sized holes and to work on various materials. You can buy a basic drill bit set that will drill holes from 1/32 inch to about 3/4 inch in diameter and will serve for small drilling jobs on both metal and wood. You may also need a masonry bit for drilling into plaster or mortar. In addition to the drilling and screwdriving bits, an electric drill can be fit with other accessories that can buff, sand, stir paint, remove paint, and remove rust.

Duct tape

Wide, silvery gray duct tape, which is made of paste-coated cloth, is remarkably strong. Its name comes from its effectiveness for sealing joints in heating, cooling, and clothes dryer ducts. It is also useful for repairing plastic, metal, and many fabric items. Do not use duct tape for electrical repairs.

Extension cord

If an extension cord is too thin, it can overheat and start a fire. When buying an extension cord, check with your hardware dealer that the cord is thick enough for the appliance you plan to use it with. Never use a cord thinner than the one on the appliance that it will be connected to because the extension cord will likely overheat. Extension cords are marked with their electrical capacities in amperes and watts. To avoid shorts, never use an extension cord that is cut, damaged, repaired, hot, or even just warm. Extension cords should be used only on a temporary basis, if at all.

Files, rasps, and planes

Files are used to smooth a metal or plastic surface. A flat file can sharpen a screwdriver or grass trimmer. Rasps are used to cut wood surfaces coarsely. A smoothing plane smoothes all wood surfaces except the end-grain, for which you need a block plane.

{ewl uwmf, MVWWMF11, home.wmf}

1. flat file
2. rasp

{ewl uwmf, MVWWMF11, home.wmf}

1. block plane
2. jack plane

Glues

White glue is used for paper and other porous surfaces. Carpenter's glue is for wood. It dries in 24 hours and requires clamping. Superglue liquid is for nonporous surfaces (such as glass) and gel is for porous surfaces (such as china). It dries in 24 hours and does not need clamping. Household cement is similar to superglue but dries slower, needs clamping, and is not as strong. Two-tube epoxy (one tube contains resin and the other has hardener) dries in

30 minutes to 3 days, depending on the formula, and may require brief clamping.

Hammer, claw

A 13-ounce, flat-face hammer with a wide striking surface and an unbreakable steel or fiberglass handle is easy to swing, accurate, and suitable for light work such as driving nails for picture hanging. The claw is used to pull out nails that are driven in at the wrong angle or in the wrong place. A 16- or 20-ounce hammer is appropriate for experienced carpenters doing heavier jobs. Buy one with a shock-resistant graphite handle or a cushioned rubber grip. A longer handle gives better balance.

Specialty hammers include tack hammers, with magnetic heads that hold tacks in place when you drive them; rubber mallets, which are used to assemble wood joints or to loosen stuck windows; and baby sledgehammers, which can be used in combination with a chisel to work loose a stubborn bolt.

Level

A level is a measuring tool that determines a straight horizontal line. It is useful when putting up shelves, hanging paintings, and so forth.

Lubricants

Penetrating oil loosens rusted screws, sewing-machine oil lubricates hinges and other close-fitting metal parts, and silicone spray can loosen stuck drawers or windows. WD-40® can do the work of both the sewing-machine oil and the silicone spray.

Nails

Most nails are made of steel or aluminum, but smooth-shanked, galvanized (zinc-coated) nails are best for outdoor use or wherever there is moisture. Nails are measured by a number followed by the letter d; the larger the number, the longer, thicker, and heavier the nail. Here is a summary of the more common kinds of nails:

- * Box nails have smaller diameters and are used where boards might split.*
- * Casing and finishing nails have small heads and are used in cabinetry and other fine work where the nail head must be concealed (finishing nails leave a smaller hole).*
- * Brads are tiny finishing nails.*
- * Common nails.*

Here is a summary of the more specialized nails:

- * Paneling nails are finishing nails with threads so they hold better.*
- * Drywall nails have threads and sharp points and are heat-sterilized to be rust-resistant.*
- * Masonry nails are for nailing into brick and concrete.*

- {ewl uwmf, MVWMF11, home.wmf}
1. *common nail*
 2. *finishing nail*
 3. *brad*
 4. *paneling nail*
 5. *drywall nail*
 6. *roofing nail*
 7. *masonry nail*

Pliers

Pliers come in a range of different lengths, and specialty pliers, such as long-nosed pliers, are used for particular purposes. The following three types are good for a basic tool kit:

- * A 10-inch multiple-joint plier should have several jaw-span adjustments (up to 2¼ inches) to loosen nuts and bolts.
- * A 6-inch slip-joint plier, a pincer-like tool, can be used to loosen bolts, to pull out staples, and occasionally to act as a vise for a small object (put the item between the tips of the pliers, then secure the grip with a rubberband).
- * An 8-inch locking-grip plier can serve as a vise, clamp, or adjustable wrench.

Plunger

A toilet plunger differs from a sink plunger in that it has an extra flange, or lip, which gives it a better seal for use in clogged toilets.

{ewl uwmf, MVWMF11, home.wmf}

1. *sink plunger*
2. *toilet plunger*

Putty knife

A putty knife is shaped like a kitchen spatula and is used to trim peeling paint from furniture or windows and to patch small cracks in walls or ceilings.

Sander

A block of wood with a piece of sandpaper around it will suffice as a sanding tool. Or use half of a rubber ball on top of the sandpaper to push it along. Another option is to buy a sanding bit for your electric drill, or if you have a big sanding job to do (such as refinishing furniture) you may want to rent a power sander.

Saws

A handsaw or crosscut saw is an all-purpose tool. Although a 26-inch blade is standard, a 22-inch blade is easier to handle. A 10-point blade (the measure of teeth per inch) will give you a smoother surface than the more common 8-

point blade.

To cut curves, you need a variable-speed, electric saber saw or a non-electric coping saw. With different blades, it can work on wood, metal, or plastic.

A keyhole saw makes a circular or straight cut to open floors, walls, or ceilings so that pipes and the like can go through. A hacksaw cuts pipes and solid metal.

A circular saw is an electric saw with a circular blade, with enough capacity (usually 7¼ inch) to make a 45-degree cut in 2-inch-thick material. It is used on long boards, paneling, and other jobs requiring real power.

{ewl uwmf, MVWMF11, home.wmf}

- 1. coping saw*
- 2. circular saw*
- 3. key hole saw*
- 4. crosscut saw*
- 5. scrolling saber saw*

Screwdrivers

Flat head (or slotted) screwdrivers come in a variety of sizes to fit different-sized screw slots. If the tip of the screwdriver you're using is too narrow, it will slip and damage the screw, and if it is too wide, it will scar the area around it.

Phillips screwdrivers fit cross-slot screws that have a small "star" in the head. (Because a single-slotted screwdriver is more likely to slip and mar the adjacent area, Phillips-type screws are often used on appliances and furniture assembly.)

With a ratchet-handle screwdriver, pressure from your hand creates a corkscrewing action that helps drive the screw into place. You can also buy a cordless electric screwdriver, but an electric drill with a screwdriver bit is more versatile.

For general use, get the following screwdrivers:

- * Phillips screwdriver with a 6-inch blade*
- * No. 3 tip and another with a 3-inch blade and a No. 1 tip*
- * flat-topped screwdriver with a 6-inch blade and a 5/16-inch tip and another with a 3-inch blade and a 3/16-inch tip.*

Screws

Screws have better holding power than nails and are used when an item must eventually be disassembled. They are used in plaster walls and other places where hammering might cause damage. Steel screws are strongest, stainless screws are expensive but rust-resistant, brass screws are rust-resistant and attractive, and aluminum screws are used for working with aluminum. The heads of aluminum screws have a single slot or a star-shaped

notch (use a Phillips screwdriver for the latter). Flat-headed screws stay flush with a surface, round-headed screws stick up and are easier to remove, and oval screws are easier to remove but harder to install because they must sink slightly below the surface. Screws are measured by diameter and length; if they are too wide, they may split the wood. Use 6-8-gauge screws for wood less than $\frac{1}{2}$ inch thick, 8-10-gauge screws for wood $\frac{1}{2}$ - $\frac{3}{4}$ inch thick, and 10-12-gauge screws for wood $\frac{3}{4}$ -1 inch thick.

- {ewl uwmf, MVWMF11, home.wmf} 1. round screwhead
2. oval screwhead
3. pan screw head
4. hex screwhead
5. hex washer screwhead

Spackling paste and caulking

Spackling paste, which comes in a small can, is used to fill small cracks in plaster or wood walls. Waterproof silicone caulking fills in cracks between two tiles or between a fixture and tiles.

Staple gun

Use a staple gun to fasten light materials to wood. Some guns can use two weights of staples, one for heavy-duty jobs like upholstery and the other for tacking shelf paper or window-covering fabrics.

Vise

A vise holds an item firmly in place while you work on it. A vise is mounted to the work table and its "jaws" can be opened from 4 to 6 inches wide. Pipe jaws are rounded, whereas wood and metal jaws are flat.

Wrenches

If you have a plumbing emergency, you will probably need an adjustable crescent wrench, which opens and closes valves, and you will also need a pipe wrench to hold the pipe. (A 14-inch pipe wrench will cover most situations.) An adjustable wrench is also used to hold and turn nuts and bolts; for all-purpose use, a 10-inch wrench is useful. Do not buy a cheap wrench; if its jaws do not meet at the correct angles, it will not do the job. An Allen wrench, a small L-shaped tool, turns screws that have hexagonal, recessed heads. These come in sets of several different diameters.

Before you buy any appliance make sure that the item will fit through your doors and hallways, in addition to fitting in its designated space. Also make sure that the appliance's door has room to open conveniently and that the outlets in your house can supply enough current to run the appliance. To safely run most appliances, you should have a grounded three-hole outlet. For a listing of all models of current appliances including size and energy costs, write to The Association of Home Appliance Manufacturers, 10 North Wacker Drive, Chicago, IL 60606. (In Canada write to The Canadian Appliance Manufacturers Association, 10 Carlson Court, Suite 500, Rexdale, Ontario, M9W-6L2.)

Blender

Blenders are great for a variety of kitchen tasks. A blender can whip beverages, puree soups, and turn crackers into crumbs but it cannot whip cream. Glass blenders are generally preferable to plastic ones because they don't scratch as easily. Look for a blender with blades that can be unscrewed from the bottom--this type is the easiest to clean.

New handheld models are less powerful and can be run at only one or two speeds, but they are excellent to mix drinks in the glass or puree soup in the pot. Some can chop, mince, and grate food as well. Containers that are marked to show the amount of contents are helpful.

Bread maker

Smaller models produce an 8- to 10-slice loaf, and larger ones a 12- to 14-slice loaf. Because the usual cooking cycle takes about three hours, the machine may also have a faster-bake cycle. It may also offer a dough preparation feature that lets you take out the dough to make other baked goods such as pizza crust, rolls, or bread in a regular oven, and a clock timer so you can wake up to freshly baked bread.

Models with a viewing window may produce a loaf that's not properly browned on top.

Coffeemaker

Drip coffeemakers consist of a carafe that sits on a warming stand, a water tank, and a filter basket. The stand and the water tank are heated by the same unit.

Coffeemakers in which the basket sits directly on the carafe make serving easier, because you can leave the grounds in place until you're ready to clean up. Carafes are usually dishwasher-safe and when broken, can be replaced by inexpensive generic models; insulated thermal carafes keep the coffee warm away from the warming stand but are harder to keep clean.

One convenient feature prevents coffee from continuing to drip down when you remove the carafe. This feature is useful if you want to pour a cupful before the entire pot has finished brewing. Other features include brew

strength controls and clock/timers that let you set out the coffee and water the night before and have coffee freshly brewed in the morning. To keep the cost of filters down, you can buy a permanent mesh filter.

Dishwasher

The dishwasher is one of the most labor-saving devices in the kitchen. It is also a water and energy saver because a single load of dishes uses only about two gallons of hot water--much less than would be used by hand-washing several smaller loads. All dishwashers should have a power-saver option that dries the dishes by either drip drying or by using a fan. If you usually do only one load a day, this option will be useful.

Some dishwashers also have a delay-start option. This option lets you automatically run the dishwasher at the most convenient time, and perhaps when energy rates are cheaper. Another convenient option is an internal water heater, which makes the dishwasher water somewhat hotter than hot tap water, making for a better wash.

Surprisingly, there is a wide range of how well dishwashers can clean dishes. Two key factors to look at are the number of spray holes in the machine and the number of washing cycles. Better machines should have more spray holes. As for washing cycles, a heavy cycle and a light cycle should be enough, but you might also want a rapid wash cycle if you have lots of dishes to wash at once. Some machines come with a delicate cycle intended for washing china and crystal but be aware that even the delicate cycle can damage dishes with gold trim.

Another handy dishwashing cycle is the prerinse setting. When you don't yet have a full load of dishes, you can use this feature to quickly rinse the dishes to prevent food from caking on them. Other features to consider include folding racks that hold extra glasses, and special designs that are supposed to accommodate more dishes. A stainless steel interior (generally found in more expensive European models) lasts longer than plastic.

Electric frying pan

An electric frying pan is a frying pan with its own heating element. Because it heats food evenly, it gives predictable and consistent cooking results. When you entertain, an electric frying pan is handy to cook bigger batches of food at a time and to keep food warm. Electric woks are similar in design although they are meant to be used primarily for stir-frying.

Large, square, domed pans are the most versatile, but the real test of an electric frying pan is how evenly it distributes heat. Electric frying pans made of anodized aluminum are easy to clean: it is unlikely to be damaged by metal utensils and its surface resists sticking.

Electric handheld mixer

To whip cream or mix cookie dough, a portable mixer--lightweight,

inexpensive, and easy to store--is the best appliance. Newer heavier ones can even stir a very thick batter, such as bread dough.

Cordless models must be recharged. If you use a mixer only infrequently, it probably makes more sense to buy a corded mixer that you can store in a drawer and take out when needed. Cordless mixers usually come with only one beater, as opposed to two with electric models. Furthermore cordless mixers are not as powerful as plug-in models and may run out of charge before your job is done.

A large range of speeds is not really necessary, because you can handle virtually any job with only three speeds. Try any model you are considering to see if it feels comfortable and is light enough to work with. And look for as sleek a design as you can find: the less nooks and crannies, the easier your cleaning job will be.

Food processor

What makes food processors so versatile is the strength of their motors, which makes it possible to grind even meat and to mix the heaviest dough. Using one or another of the various blades, you can slice or chop fruits, vegetables, and nuts. But for pureeing or mixing liquids, you're better off with a blender; for mashing or whipping jobs, a portable mixer is better.

For small chopping jobs, a mini-chopper is handy. It's easy to clean, inexpensive, and takes up little counter space. But for shredding or slicing, you need at least a compact food processor that holds up to four cups; if you cook a lot and don't want to process many small batches, you may prefer a full-size processor with a capacity of up to twelve cups.

To cut down on your preparatory work, choose a model with a large feeding tube that will accept large chunks of food. As for cleaning, bear in mind that complicated feeding tubes are harder to clean. All food processors come with a chopping blade and a slicing or shredding disk, and most models offer optional disks for making thicker or thinner slices and for grating. Some of these add-ons are useful, but avoid add-ons for whipping cream or making dough; these jobs are better performed by a portable mixer.

Garbage disposal

With a few exceptions such as banana peels, corn husks, and celery, a garbage disposal can handle almost all organic garbage.

The system is composed of three parts: the grinding chamber (where you pour the food), a shredder plate with an attached motor at the bottom, and a grinder ring around the edge. Water carries the food particles to the sewer or to the septic system.

A batch feed system is the safest, since the motor doesn't start until a stopper is placed in the opening, but this type of unit is hard to find and more expensive than a continuous-feed machine. A continuous-feed machine

operates at the flick of a wall switch.

The best way to judge the durability of a garbage disposal is to look at its horsepower. Machines with larger motors won't necessarily be faster, but they will be more powerful.

Machines with stainless steel parts are more durable than machines with carbon steel or aluminum parts, which can rust and corrode. Other features that help prolong the life of the machine are an automatic reverse motor, an anti-jam mechanism, an overload protector, and a detergent shield that protects the motor from caustic cleaners. Also check the noise level of the machine: a quieter machine is not only more pleasant to live with, but also better balanced, which means less wear on the motor. To cut down on noise, have the disposal installed with a cushioned mounting bracket.

Juicer

Blenders, which can be very powerful, are not the same as juicers. True juicers are most commonly centrifugal types, which shred vegetables and fruits, or masticating types, which chew the produce up and produce a pulpier liquid. Masticating types are generally larger, more expensive, slower to operate, and harder to clean and assemble, but they can grind, grate, and homogenize (to make nut butters or sorbets) in addition to juicing. Before you buy, check the machine for noise, ease of assembly, and ease of cleaning (which depends on how many parts the juicer has and how complex they are).

For homes with small children, a safety lock is a good feature. You may want a juicer that can make more than one or two glasses of juice at a time or one that keeps operating while you clean out the pulp. Remember that if the machine has a small chute, the produce will have to be cut into smaller pieces before it is fed into the machine.

Microwave oven

If you need a microwave oven to just heat things such as leftovers, frozen dinners, and liquids then you can probably do with a less expensive model. But if you plan to cook with your microwave, then you should consider buying a high-wattage model that will cook hotter and faster. Furthermore, many microwave cookbooks are written for these high-wattage microwave ovens; if you have a less powerful one, you'll have to adjust the cooking times, and the results may not be satisfactory.

Before you shop for a microwave oven, consider where you want to put it. Although most microwave ovens are designed to go on the counter, you can also find ones that fit over a range or under a cabinet. If you have kids, try to put the microwave oven in a place that they can safely and easily reach because one way or another, they'll try to use it anyway.

Be aware that microwave ovens only heat $\frac{1}{4}$ to 2 inches into the food, so the center of a thick piece of food (such as a chicken) will only be cooked as the

heat from the outer layers moves inward. The cookbooks that come with your microwave should give you tips on best cooking times and techniques for specific foods; in general, you want to make sure that your food is cooked thoroughly.

A microwave oven that has a turntable can give you much better results. The turntable slowly rotates the food as it is being heated, so that the food cooks evenly. Although the turntable takes up some of the already limited space in your microwave, the results are well worth the small loss of space.

Some popular features on today's microwaves include variable power levels, a special defrost power level (uses less power to slowly defrost food), and multistage programs (lets you start cooking at one power level, and then automatically switch to another one a few minutes later). But one of the most often overlooked, yet most important, features is ease of use. A microwave full of features is no good if you can't use them! Ask the salesperson to show you how to use the more common features--then try them out yourself.

Ranges and ovens

Ranges

If gas connection is an option, your first choice is between a gas and electric range. Costs are about the same, as is size, and now even gas broilers are conveniently placed at the top of the oven (leaving the bottom drawer for storage).

Gas ranges heat up faster than electric ranges but cook slower: boiling water over an electric coil burner takes about one-third less time, and over an electric sealed burner about one-fifth less time than boiling it over gas. Also gas may scorch some foods over sustained cooking and isn't as clean as electricity, but it is cheaper to operate and many cooks prefer it because the heating intensity can be adjusted more quickly.

Sealed-burner models in gas and smooth-top electric ranges are easier to clean but slower to cook than coil tops. However sealed-burner models can be more dangerous than coil tops because they don't look hot even when they still are hot. Glass ceramic tops are attractive but slow to warm up and cool down and are easily stained. Induction cook tops have none of these disadvantages, but aren't ideal for fast, hot cooking and can only be used with certain cookware.

Depending on the design of the kitchen, you can choose a freestanding range that's finished on the sides, a drop-in or slide-in model, which is not, or a built-in model with a separate cook top and oven. Professional quality stoves offer a bigger top with more burners and additional options such as a grill and a deep fryer.

Ovens

Conventional, self-cleaning, and continuous-cleaning ovens are available either attached to a cook top or as a separate wall unit. All types use a lot of energy; moreover, self-cleaning ovens may be smaller than normal, and continuous cleaning ovens don't always clean that well. Many professional cooks prefer to use an electric oven because it maintains a more even temperature and doesn't dry food out.

Electronic gadgetry for the oven adds to the price and increases the possibility of need for repair, but if the oven has a lot of features, a display can make it much easier to use. Convection ovens, a recent development, cook food faster and at lower temperatures, thus saving both time and energy, but they require some adjustments in conventional recipes.

Refrigerators and Freezers

Refrigerators

One of the most important factors for buying a refrigerator is storage capacity. An informal rule of thumb is to allow 12 cubic feet of capacity for the first two people living in the house, and then two more cubic feet for each additional person. Even at full capacity, there should be enough room inside the refrigerator for proper air circulation.

Besides the traditional refrigerator with the freezer compartment on top, there are also models with the freezer compartment on the bottom and side-by-side models with the refrigerator on one side and the freezer on the other. Some people like models with the freezer on the bottom because more of the food is at eye level, but it is really a matter of personal preference. Side-by-side models are convenient, and have a lot of space, but are more expensive. For any of these models, look at the door shelves, and make sure that they are big enough for your needs and that the retainer bars on the door are sturdy.

Another important factor to consider is cleaning. Keep in mind that darker appliances tend to look dirty faster, and that textured surfaces collect more grime and are harder to clean. For cleaning up around and behind the refrigerator, built-in casters (small swiveling wheels) make it easier to move the refrigerator. For the interior of the refrigerator, look for removable shelves and drawers that are easy to clean; glass shelves tend to need more cleaning than wire rack shelves.

Some common convenience features to consider are an exterior water and ice dispenser, an automatic ice maker (especially helpful if you entertain a lot), and special storage areas with adjustable temperatures. Most larger refrigerators will automatically defrost, but the smaller models generally have to be defrosted manually. Manual defrost refrigerators use up less energy, but only if they are properly maintained and defrosted as recommended by the manufacturer.

Before you buy a refrigerator, make sure that it will fit where you want to put

it and make sure that the door opens in the direction that is most convenient for you. Consider how you will load and unload groceries, and where the counter is relative to the door. If you think that you might move in the near future, you should consider getting a refrigerator that has interchangeable door hinges so that you can have the door open from either side.

Freezers

One important factor to consider when shopping for a freezer is whether it will be in a heated area. If you plan to put the freezer in an unheated area such as a garage (or any area where the temperature goes below 55°F/13°C), you need to make sure the freezer is designed to work in cold places. Although most manual defrost freezers can be operated in colder temperatures, many combination refrigerator/freezers will not function properly in temperatures below 55°F/13°C and may completely shut off below 42°F/6°C.

In terms of defrosting, most chest-style freezers manually defrost, but a number of upright freezers automatically defrost.

To calculate how much capacity you need, use this informal rule of thumb: allow 3 to 4 cubic feet of storage for each person living in the house. But keep in mind that the capacity you need really depends on your buying habits.

Some features to look for in a freezer are adjustable shelves, casters (small swiveling wheels), a drain to help make defrosting easier, and a safety light to warn of power failure.

Rice cooker

If you eat a lot of rice, or if you do a lot of entertaining, a rice cooker can be convenient. A rice cooker makes it very quick and easy to prepare rice and gives consistent results. Rice cookers are great for entertaining because you can easily make a lot of rice with little effort. When buying a rice cooker, consider how many people you will typically be cooking for and pay attention to the minimum amount that you can make at one time. Rice cooker sizes range from one cup of rice (about enough for one person) to up to 20 cups of rice. In addition to cooking rice, some rice cookers can be used for steaming food.

Toaster

Look for toasters that hold four slices instead of two (particularly if they have separate controls for two slots at a time) and that have stay-cool plastic housing (unlike the traditional models).

There are also toasters with a single long slot or extra-wide slots to accommodate oversized bread or thicker items such as bagels. But not all models advertised as "wide" are wide enough--at least an inch wide--to be practical. Other extra features to look for include undercabinet mountings

(good if space is at a premium), a crumb tray for easier cleanup, and a setting that keeps toast warm.

Toaster oven

If you have limited room and frequently broil or bake only small amounts of food, a toaster oven can save space as well as energy. A toaster oven does an adequate job of toasting bread and can cook a small meal using less energy, although it may not do either job as well as a conventional toaster or broiler. Removable racks and doors and porcelain-coated steel, rather than aluminum, make cleanup easier.

Aluminum cookware

Aluminum cookware is lightweight and not very durable. It may discolor when acidic food is cooked in it. Nonetheless, aluminum cookware is easy to clean and inexpensive.

Casserole dishes, 12-quart and 16-quart capacity, with lids

Casserole dishes should be microwaveable and ovenproof. Use them for everything from baking cakes to making slow-cooking dishes such as tuna casserole or scalloped potatoes. You can take casserole dishes directly from the oven to the table.

Cast iron cookware

Cast iron cookware is hard to handle because it is heavy; however, cast iron cookware distributes heat evenly and is unlikely to burn food. Cast iron is the traditional choice for frying pans.

Cookie sheet

A cookie sheet can be used to heat garlic bread or pizza. Have more than one sheet if you bake a lot of cookies.

Copper and copper-bottomed cookware

Copper and copper-bottomed cookware is the choice of professionals because of even heat distribution; however, copper cookware is a problem to clean.

Dutch oven

A Dutch oven is a heavy, covered pot for making stews or slow-cooking meat. It can be used in the oven or on top of the stove. Be sure that whatever you buy has ovenproof handles. If you buy an enamel Dutch oven, you can serve food directly from it.

Enamel cookware

Enamel cookware is actually made of enamel-coated metal. Although their surfaces may nick and chip, enamel pots are generally good-looking and suitable for taking from stove to tabletop. But for general use, some people find enamel pots too heavy.

Frying pans

You should have two frying pans, one 8" in diameter for an egg or two, and another 12" in diameter or big enough to cook four pieces of chicken.

Glass and ceramic cookware

Glass and ceramic cookware is easy to clean, but some glass pots may crack when water boils away unless, like Corningware®, they are specially treated. Corningware® pots can be put in the freezer, in the oven, in the microwave

oven, and on top of the stove.

Lasagna dish, 9" x 13"

A lasagna dish should be microwaveable and ovenproof. For cooking meat, add a roasting rack that fits in the lasagna dish so that you can put meat on top and let the fat drain off. This rack and dish combo is good to use in your broiler, too, because it is much easier to clean than the broiler.

Pot, 1-quart capacity, with lid

A 1-quart pot is good for making rice or vegetables, or for boiling an egg.

Pot, 2-quart capacity, with lid

A 2-quart pot is for larger quantities. With a steamer insert, it can be used to cook potatoes and other vegetables.

Pot, 6-quart capacity, with lid

A 6-quart pot is good for boiling pasta, cooking corn, or making a soup or stew.

Roasting pan, 10" x 14"

A roasting pan should be made of metal; a cover is not necessary. For larger roasts, use a rack with the pan to allow the fat to drain off of the meat. If you use a large pan only occasionally, you may prefer to get a disposable roasting pan.

Skillet, nonstick, 12" in diameter

One of the great features of a nonstick skillet is that you don't have to (and shouldn't) use butter or oil to prepare food on it. A nonstick skillet is ideal for cooking eggs, pancakes, and so on.

Stainless steel cookware

Stainless steel cookware is very easy to clean, unlikely to burn, and not too heavy to handle, while still being heavy enough to distribute heat well. Stainless steel cookware may discolor under high heat but is unlikely to warp.

Steamer insert

If your pot did not come with its own steaming basket, a steamer insert can be purchased separately.

Wok

A wok is indispensable for stir-frying vegetables and preparing Asian dishes. Its sloping sides form a large cooking surface, so foods cook quickly. A stainless steel wok costs more than a frying pan but is easier to clean.

Beer can opener

In addition to opening cans and bottles, a beer can opener can be used to help you open tight jars. Just insert the tip of the opener under the lid of a jar to release the vacuum from the jar and make the jar easier to open. A beer can opener can also be used to help with a "press here" area on a box that doesn't seem to budge.

Cooling racks

In addition to cooling cakes, a pair of cooling racks can be used to hold fish (or other foods that tend to fall apart) on the grill for easy turning without crumbling. Cooling racks are less expensive than gadgets sold just for that purpose. Cooling racks can also be used in a roasting pan, under meat, to allow fat to drip away from the meat.

Colander

A colander is a bowl with perforations that generally has legs or handles. It works like a strainer but is used almost exclusively to drain pasta and other foods.

Cutting board

Wooden cutting boards can split and collect dirt, but researchers have found that plastic boards, previously considered safer, harbor more bacteria. Get a cutting board that is large enough to be used with a large knife. If necessary, you can later add a smaller cutting board (e.g., to mince a garlic clove, to cut a lemon at the bar) that is quicker to clean.

Food mill

Before the days of food processors, food mills were the only tool available to puree cooked fruits and vegetables. If you do not have a food processor, you may consider getting a food mill.

Kitchen shears

For trimming the fat from meat, mincing meat, cutting pizza, trimming leafy vegetables, and countless other cutting and chopping jobs, kitchen shears are a must. Be sure to clean them after every use, and use them only for the kitchen.

Knives

Blades of good quality knives are generally made of high-carbon stainless steel. The handle should be well-finished and the rivets should extend all the way through. There should be no gaps between the handle and the blade where bacteria can hide.

You can buy serrated-edged knives that never need sharpening but the finest knives do. When the blade becomes dull, have the knife sharpened professionally at a hardware store, or do it yourself with an electric

sharpener or with a sharpening steel. To sharpen a knife, first lubricate the steel with a bit of salad oil. Pull the knife either toward you or away from you, but always start with the blade heel end and continue toward the tip. First work the knife on top of the steel, then underneath, so you can hone both sides of the knife.

An electric knife allows you to make very thin slices (as on a roast) and to cut items (like a tomato) with a delicate touch that leaves slices unsquashed. But at a minimum, you need the following:

Boning knife

A boning knife has a very slim-blade that is flexible enough to slip between meat and bone. This knife is also useful for trimming fat off of meat.

Chef's knife,

A chef's knife has an all-purpose large blade that may be slightly curved. The knife is used for chopping and mincing, dicing, slicing and can also be used for carving, although the conventional carving knife has a large, triangular blade better suited for carving.

Paring knife

A paring knife has a short blade used for peeling fruit. This knife can be used for other light cutting jobs.

Serrated knife

The serrated knife has a shark's tooth kind of pattern; it can only be sharpened professionally. This knife is very useful for cutting crusty fresh bread, soft tomatoes, and other items which you don't want to crush while cutting.

Two other knives that you may want to consider purchasing are:

Carving knife

A carving knife has a large, triangular blade used to cut roasts. This knife is often sold with a carving fork.

Electric knife

An electric knife cuts food without squashing it. This knife is also useful for quick carving.

Knife rack, magnetic

Although a knife block can safely store knives, it does not hold many. A better solution is a magnetic bar, which can also hold a beer can opener, a peeler, and kitchen shears, to name a few. A magnetic knife rack keeps your knives in better shape than if they were kept in a drawer because the blades aren't banged around.

Measuring cup

In addition to measuring liquids, measuring cups can be used in the microwave to melt butter and heat sauce. You can also use them to pour pancake batter on the griddle.

Mixing bowls

For mixing and storing foods, get a set of stainless steel bowls. They are indestructible and nonporous. Even after you use them for nonfood jobs (like doing the hand laundry), they can be washed out and returned to the kitchen. They usually come in a set of three; if they have rings, they can be hung conveniently. Plastic bowls that have rubber on the bottom (to prevent them from skidding) are a good idea, but you can also put a damp towel under bowls for the same purpose.

Be aware that if you use a plastic bowl to hold a household cleaner, then you can't use that bowl to hold food. Plastic is porous and may soak up some of the cleaning solution, which could then get into the food. If you have plastic bowls that are used for cleaning, be sure to label them as such.

Potato peeler

A potato peeler can be used on other kinds of food. Use it to peel carrots and kiwi fruits, to shave chocolate and cheese, and to trim damaged sections off celery. The tip of the peeler can also be used to take the "eyes" out of potatoes.

Books

Because books are so heavy, use smaller cartons. Special book cartons are available from moving companies and freight terminals.

Color television

If your television is large, do not box it. It should be loaded onto the truck, wrapped in heavy pads, and then packed into a corner where it will not move.

Computer

Before unplugging your computer, you should make a backup copy of your hard drive. To backup your hard drive, use a backup program to copy all of the information on your hard drive to disks. This way if anything happens to your hard drive or your computer during the move, you still have a copy of your information on the disks. If you have an older computer, you may also have to "park" the hard drive so that it can be safely transported. Consult your computer manual for more information.

To protect your floppy drives, you should insert either a cardboard disk or an old floppy disk into the drives before you move the computer. You should ideally pack your computer, monitor, and so forth in their original packing boxes, but if you don't have the original boxes you can buy special cartons.

Computer printer

When moving a laser, ink-jet, or bubble-jet printer, remove the ink cartridge so that ink will not spill inside the printer. To prevent the ink from spilling, the ink cartridge should ideally be shipped in the packaging that it came in. If you don't have the packaging, you can try putting scotch tape over the nozzles of the ink cartridge.

If you don't have the printer's original carton, you can try packing the printer as follows: Tape down any covers on the printer so that they stay put. Then put the printer in a large plastic bag, and pack it in a box that allows at least 4 inches around each side. Fill the rest of the space in the box with puffies.

Cookware

If heavy, pack cookware in small boxes, using padding between each dish. Disposable foam plates work well as padding and can be reused later.

Cups

Cup handles should not break if you pack cups in "groups" of four, placing the handle of each in the next cup. Then, wrap the set in paper towels or small kitchen towels.

Disassembled items

When you remove the screws while disassembling items, lay them down on a

piece of adhesive tape. Tape another longer piece of adhesive tape on top. The middle secures the screws, and the sticky ends can be fastened to the item to which the screws belong.

Dishes

If you pack dishes yourself, buy the "stub end" of a roll of newsprint paper from the local newspaper office. You won't have to wash newsprint off your dishes later (some movers may sell this product, called newsprint, as well). Or pack dishes with foam plates between them. If the dishes are clean, the foam plates may be reused later as paper plates. You can also use unprinted paper towels (which you can recycle for cleaning) or kitchen towels between the plates. Another option is to buy "dish packs" from a moving or truck rental company.

Drawer contents

Contents of separate drawers (e.g., kitchen, desk) can be packed in separate resealable plastic bags. This way you won't have a jumble to sort through later.

Electronics and small appliances

If you've discarded the original Styrofoam®-lined cartons for your electronic equipment, computer, and small appliances, ask for some at a hardware store, or buy bubble wrap and the right-sized cartons.

Garments

For hanging garments, put a metal twister around the hangers of a group of similar items and slip a garbage bag over the top; they will be ready to rehang right away. Or lay them on a sheet and tie the corners at each end to make a carrying loop. Pin the length of the sheet to protect clothes further. Have a partner carry one end, you the other. Or buy cardboard "closets" from a moving company--estimate one per closet. For folded garments, see "Linens and Bedding."

Glass tabletops

Special cartons for glass tabletops are available from moving companies or moving supplies stores.

Glassware

Special cartons are available for glassware, or you can use liquor cartons with preexisting separations. Disposable diapers wrapped around glassware can still be used for their original purpose after you move. Pages ripped out of an old phone book also work well for glassware.

Kitchen items

Ask a liquor dealer for divided cartons. They come in various sizes (4 dividers for jug wines, 12 for standard wine bottles, and more for small liqueur

bottles) and are helpful for keeping your kitchen utensils organized and completely accessible--even though they are still packed.

Large appliances

Items such as washing machines, refrigerators, air conditioning units, and television antennas will need special servicing and reinstallation. An appliance dealer should disconnect them.

Before you unplug your washing machine, set the dial on the spin cycle 3 or 4 times to remove excess water. Otherwise, when it's tipped back you might have a mess. You can also buy tub locks for washer and dryer tubs. You can find tub locks at hardware stores and appliance stores.

Linens and bedding

Store bedding and other items in dresser drawers. Professional movers will leave the drawers of dressers in place when they move them. Or pack them in plastic garbage pails, which can be kept for long-term storage or used later as intended--to hold garbage. You can also buy inexpensive cardboard chests in decorative colors, but these can be flimsy.

Mirrors

Mirrors should always stand on end. You can pack them between two mattresses, but for a long move ask the mover for a mirror carton.

Oil paintings

Special cartons are available for oil paintings. Ask a moving company for information.

Packing cartons

Packing cartons can be bought from a box manufacturer, moving company, or freight terminal. If you use liquor cartons, make sure they have a top; otherwise, you cannot stack them. When you tape boxes closed, put a piece of string under the tape, leaving 2 inches on one end. When unpacking, just pull the string to slit the tape. Be sure to use sufficient strapping tape on the underside of cartons so they won't spill open. If you cut "handles" into all the sides, the cartons will be easier to pick up and carry.

Packing order

Start with storage areas (for items not being used now) and sort and mark by category. Next, pack items that you don't use regularly, such as books, collections, records, and pictures. Then pack the sound system and other appliances except for kitchen items such as the coffee maker and clock radio. Next, pack out-of-season clothing. Cookware should not go until the week before the move, and everyday clothing, personal toiletries, and so forth should go last.

Pets

Nearly every state has laws on the entry of animals other than tropical fish. Write to the State Veterinarian, State Department of Animal Husbandry, or other authority you may have been advised to contact. Dogs and horses need interstate health certificates in nearly all states, cats in about half, and some animals must be sent ahead so that an entry permit can be issued.

Most states require a rabies inoculation for dogs and many do for cats (with a tag secured to the collar). Hawaii requires that animals be quarantined for 120 days. There may be random inspection by highway patrol officers or a routine border inspection. For special considerations when traveling by car or plane, see "Traveling" in "Tips on Caring for Cats" or " Tips on Caring for Dogs."

Smaller pets (e.g., birds, hamsters) can be sent by air express. Special containers are available from airline freight departments, pet stores, and department stores. A pet shop specializing in fish can pack your tropical fish. Contact the city clerk to make sure your community allows large pets (such as horses) and has no limitation on the number of dogs and cats per residence. Keep dogs confined for at least a few days and cats for several weeks so that they realize the new place is home. Otherwise, they may get disoriented and wander off in search of the old home.

Pictures hung behind glass

Do not stack pictures hung behind glass because frames may warp and glass may crack.

Plants

Some states have quarantines or may restrict movement of some houseplants that harbor pests, and some have requirements that plants be certified as pest-free. Vehicles may be stopped at random. Save time by having state-of-origin certifications. Call the Department of Agriculture's county office to schedule an inspection, which may involve bringing in the plants and having them treated.

To protect plants, keep them in wrapped cartons (between 35 and 95 inches) and never in unheated vehicles in freezing weather. Most plants can survive a week or so without watering (moisten them when packing) and without light, although they are susceptible to disease, wilting, and sun scald when taken out of darkness. Limit sun exposure for the first few days. Instead of whole plants, you may wish to take only cuttings in a plastic bag containing damp vermiculite, peat moss, or perlite, but they may survive only a few days in such conditions.

Tables

If self-packing, remove table legs and tape bolts to the bottom of the tables.

Things to bring

Pack a special carton with the following:

- * enough clothing for at least 3 days plus 1 day for each day on the road*
- * toiletries such as the following: brush, comb, washcloth and towel, shampoo, deodorant, toothbrush and toothpaste, first-aid kit, medications*
- * sleeping bags, because the movers may not set up the beds, and bedding*
- * tissues, toilet paper, light bulbs*
- * one or two pots, paper plates, cups, napkins, flatware, a couple of knives and cooking spoons*
- * coffee, soup, bread, peanut butter and jelly, drinks, aluminum foil*
- * a phone book from your old town for any numbers you may need*

Toiletries

Ask a liquor dealer for divided cartons. They come in various sizes (4 dividers for jug wines, 12 for standard wine bottles, and more for small liqueur bottles) and are helpful for keeping your bath and cosmetic items organized and completely accessible even though they are still packed.

Van loading

Packing the van tightly should help minimize damage from items moving around during the drive. Load heavy appliances first, behind the cab. Tie mattresses on their edges to the side of the van. Large crates containing glass or paintings should be tied to mirrors. Next, load large pieces of furniture, using protective pads around each piece. Tables (with legs removed) can be packed on their sides. Use padded straps or ropes to secure doors of cabinets and dresser drawers. Rugs should be rolled and put in the middle of the van. Fill extra spaces with small boxes, small pieces of furniture, cushions, and pads.

Scheduling the moving day

The busiest periods for moving are in the summer, particularly at the first and last of the months, so you may be able to get a lower rate if you move between October and April.

If you can be flexible, the mover may ask you to select a series of dates, any of which is acceptable for loading and delivery. If, however, you need a guaranteed pickup and/or delivery date, you may be charged an extra fee. Should there be an unforeseeable delay on either end, the mover is required to let you know by telephone, by telegram, or in person, and you may be entitled to some compensation.

Because your move can be affected by bad weather or traffic conditions--or even the dates of another family's move (movers usually work with several households at once)--it is prudent to ask both your seller and buyer if they can give you a few days' spread, so that you have the flexibility to deal with whatever situation may arise.

Selecting the mover

If your company will move you, some of your expenses may be covered (ask which ones), but you may not have any say on the selection of a moving company. If you are on your own, however, the best way to find a mover is via a personal reference.

For a local move, it will probably be sufficient and generally less expensive to hire a small, independent company. But be aware that "short haulers" are not necessarily subject to the same licensing requirements as "movers." For a move from city to city, or if you have many valuable items, you will probably be more comfortable using a big interstate mover; in the event of any damage or loss, claims will probably be easier to settle.

Once you have a recommendation, check that company with your local Better Business Bureau. Also, ask an interstate mover for their performance record, which, by law, they are obliged to provide. Carefully review the literature that the mover sends to you. You may even wish to visit the company office.

Narrow your choices to three movers by no later than 4-6 weeks before your move, then contact each one and tell them when you plan to move and where. During a preliminary call, they should give you general information about their charges and services. You should also know about their pickup and delivery routine, storage fees, and the liability and claims protection they offer.

Determining liability and loss coverage

Here is a general guide to the various types of liability and loss coverage. Because the details of these coverages varies, be sure to ask your mover for exact details.

Generally with limited liability, the claim cannot exceed 60 cents per pound of the item. You usually get the whole of 60 cents per pound of any item lost or irreparably damaged, and up to 60 cents per pound toward the cost of repair.

Generally with added value, you get a cash allowance for a damaged item based on its depreciated value. If a 5-year-old dining table is damaged, you get cash for the current cost of one that is comparable minus 5 years worth of depreciation.

Generally with full-value protection, some firms offer you additional protection for a higher premium. Ask for details.

Generally with inconvenience claims, reimbursement is provided for your out-of-pocket living costs if a late pickup or delivery was the mover's fault.

Once goods are in storage (or storage-in-transit, which is temporary), your mover may no longer be liable for risk of loss. Some movers participate in an independent arbitration/dispute settlement program. Ask for an explanation on these and any other issues you want to know about.

Getting the estimate

The cost of a move usually depends on the total weight of the items or the amount of space they take up in the van plus the distance they are transported and the cost of packing and other services. In addition, you should ask about storage costs. Quite often, if you want your goods delivered on a specific date, the moving company will have to store your goods for several days before they are delivered. Because this can be quite expensive, be sure to ask the moving company about it.

A nonbinding estimate is a probable cost of the move. A binding estimate is a guaranteed maximum amount that is irrespective of the weight of the shipment. If you have a nonbinding estimate, your final costs may be lower or higher than originally anticipated, and if you add items and services at the last moment--which changes the estimate--there may be delays in your move.

When the estimate is being prepared, make sure the mover has seen everything in your home--in the closets and under the bed, from the attic to the basement and including the garage. Anything that is added after the estimate is prepared will add to your final charge.

Preparing the inventory

Before your move, the moving company will prepare an inventory of whatever goods are being shipped. Be sure that you can read all copies of the inventory and that every item is numbered, listed, and correctly described. Valuable items should be listed separately and, if small, carried by you. Before you sign the inventory sheet, read it carefully. You will be given a copy to refer to at the unloading end, where you will be asked to sign it after

you have received and inspected your goods.

Keeping moving costs down

** Do not pay to move furniture and rugs that won't fit, won't match, or will seem shabby in your new home. It is often cheaper to replace furniture than to move it.*

** Go through your possessions and discard toys, clothing, and other items you don't need and won't use and items that will be more bother to pack and unpack than they're worth.*

** Make a special effort to leave behind unnecessary tools, books, and records (which are particularly heavy) and unneeded chandeliers, ceiling fans, and light fixtures (which require special handling).*

** Do not move food, dirt (in sandboxes or large planters), or firewood.*

Packing

You may wish to save some money by packing some of your goods yourself. Although movers will generally not accept liability if items you pack are broken, they will offer advice on packing and sell packing materials such as sturdy cartons and bubble wrap. (Otherwise, buy materials from an office supplies or other moving company.)

Although some movers can do limited special service on appliances such as televisions, stereo equipment, washers, refrigerators, and home freezers, ask the moving company how much it will handle. You may need to have your appliance dealer prepare your washing machine, dishwasher, television antenna, air conditioning unit, and so forth to make sure that hoses are properly disconnected, for example, and that all moving parts are secured in order to prevent damage when they are transported. Always remove all food from your refrigerator and freezer, and then defrost them and wipe them out; if not thoroughly dried, they may mildew.

The packing day is generally a day or two before the loading van arrives, and it is important that you or your representative be on hand when this happens.

What a mover won't carry

** Movers will not carry flammable items such as oil rags, dust mops, matches, paint, ammunition, aerosol cans, and other items that could cause a fire or an explosion.*

** Movers will not be responsible for valuable items such as jewelry, money, and personal papers. Anything that is especially valuable should be transported by you.*

** Movers will not take pets and, in some cases, plants. Under Interstate Commerce Commission rules, they will take plants if they are transported no more than 150 miles and/or delivery is completed within 24 hours of loading,*

no storage is required, and no en route servicing or watering is required.

** Movers expect you to have the bed stripped. Movers will, however, take apart beds, roll up carpets, and put mattresses in cartons.*

Delivery day

You or a representative should be on hand at delivery to direct proceedings, answer questions, and pay the driver. Make sure that the mover's agent has your telephone number. If you cannot be reached when the van arrives, your goods may be put in storage so that other deliveries are not delayed, and you will be charged a storage and handling fee.

For interstate moves, the driver must be paid before goods are unloaded, so have the payment ready. If the billed charges are more than the nonbinding, written estimate, you have to pay both the estimate and 10% of the balance due at delivery.

If you notice any damage or loss that occurred in transit, make note of it on the inventory list, and do not sign the receipt on the driver's copy until you've made your inspection. If you do not want some cartons unpacked, make a note of how many on the inventory sheet and inspect them for obvious damage. Keep the bill of lading and original bill in case you have to make a claim of any sort.

Making a claim

Any damages or losses should be noted on the driver's copy of the original inventory sheet.

If you discover concealed damage in any of the unpacked cartons, do not throw anything out. Leave the damaged items and broken pieces inside the carton as proof. Get loss and damage claim forms from the mover's agent or write a letter to the home office.

Review your contract carefully to be sure that you know how much time you have to make a claim. It may be possible to make a claim up to 9 months after the move. The mover must respond to your notification within a short period of time, usually 30 days. Usually within 120 days, you must get either a denial of the claim or an offer of settlement.

Answering machine

Keep sticky notes next to the telephone answering machine to make message taking easier.

Bills

Hang a multi-pocket shoe bag in a closet or on a convenient wall to file and store bills. Label each pocket according to the type of bills it will hold.

Checkbook

Use the Bob Checkbook to keep track of your bank accounts. You can even avoid using checks with Checkbook's pay on-line feature.

At the beginning of the year, write the new year on the first twenty checks in your checkbook.

Cleaning supplies

Invest in good cleaning equipment and store it where it's needed. Keep items such as a liquid cleanser and a sponge in each bathroom so that you can wipe sinks or clean bathtubs quickly with no time wasted in searching for your supplies.

Housekeeping

Divide up housekeeping chores among family members. List weekly chores by room and assign each member one or more rooms. Use the Bob Calendar to set reminders about these chores.

Clothes

Have family members place clothes that need mending or ironing in a designated box at the bottom of a closet.

Cooking

Cook double portions of everything whenever possible, and freeze the second portion to serve at a later time. Or start a slow-cooking stew at the same time that you're making tonight's meal. You can keep an eye on the stew as you eat dinner and then refrigerate it for reheating on another day.

Driving directions

Write driving directions on sticky notes--one step per note--and attach the stack on the dashboard of your car. As you follow each step, move each note to the side.

Electronic equipment

When you unplug electronic equipment such as the VCR or the stereo, color code the wires and the outlets so that you can quickly hook them up again.

Family activities

Hang a large calendar in the kitchen with a pen next to it so that family members can write in their appointments. Or hang a large bulletin board with a space labeled for each family member. Tack items such as phone messages, job schedules, school notices, and party invitations to the message board.

Filing

Maintain a home office file with the following items: banking and payroll information including checks, bank statements, and pay stubs; income tax information including returns and W-2s for the past three years as well as files of current paid receipts and expenses; other financial records such as brokerage sale and purchase confirmations, loan information and books, net worth statement, and social security and pension statements; health records such as immunization records; insurance records including copies of policies and names of agents; legal records such as a copy of your will and name of attorney; credit card information including numbers of every card you hold; purchase information, including warranties and service contracts; and home information for eventual sale, including records of major purchases and improvements.

Sort medical records, such as immunization records and eyeglass prescriptions in file folders assigned to each family member.

When you set up your home files, do not overfile (too many categories) or underfile (a jumble of things under a broad a miscellaneous category).

Freezer labels

Label freezer containers with ordinary black crayon, which washes off, or self-adhesive labels. Mark the containers with a "use by" date, as well as with the date that they were frozen, to keep better track of what should be used first.

Glasses

If you constantly misplace your glasses, assign one place in each room where you will leave them.

Inventorying

Use the Bob Household Manager to keep lists of the items in your house. In addition to the lists in the "Household Records" section, look for the "Kitchen Appliances" list under "Kitchen Information," and all the lists in the "Collections" section.

Kitchen appliances

If you keep a lot of appliances on the counter, attach a piece of masking tape or self-adhesive label around the end of each cord, identifying what appliance it belongs to.

Laundry

Don't waste any time sorting socks. Give each family member two mesh bags--one for colored socks, one for white socks. The bags of socks can be tossed into both the washer and dryer already sorted.

If possible, install your washer and dryer near the bedrooms, where the bulk of dirty laundry--clothing, bedding, and towels--tends to accumulate and to where cleaned laundry is often returned.

Keep three hampers in the laundry room: one marked "whites," one marked "colors," and one marked "delicates." Items will get sorted more efficiently and you can determine at a glance when there's enough dirty laundry for a load.

Membership cards

On the refrigerator, hang a magnetic-backed pocket to hold items such as your videotape rental card, gas card, movie passes, and so forth.

Memory joggers

To get out the door quickly in the morning, before you go to bed place everything you need near the front door. Hang a shelf for smaller items, a clip for letters that must be mailed, and do whatever else is necessary to organize all the items that you often need before leaving the house.

Attach Sticky to the inside of the door with reminders of anything that must be taken care of the next day. Or stick a Sticky note to your purse or briefcase strap. Notes left on the bathroom mirror are also hard to miss.

Operating manuals

Keep a file folder in each room clearly labeled "Appliance Information" and file the operating manuals for appliances that occupy the room in that folder. For example, file the operating manuals for the bedroom television and clock radio in the bedroom.

Organizing

Use the Bob Calendar to keep track of your appointments and to keep to-do and to-buy lists. Look at the Bob Calendar daily to see what must be done and what chores can be grouped--for example, if you're going to the hardware store, you may be reminded of another hardware item you need or a stop you can make along the way.

Don't try to tackle everything at once. Deal with just one envelope of photographs or just ten items in the in-box at a time.

Rethink the way your house is organized. Is the silverware drawer near the dishwasher? Are there items you routinely fetch from distant rooms? Put them where they are needed.

You will get a faster start in the morning if, the night before, you shower, lay

out your clean clothes, and gather everything you'll need to take with you.

Papers

Office storage boxes are inexpensive, have lids and handles, and can make up an ideal storage system. They are uniform in size and can hold anything from old tax records to Christmas ornaments. Cover each storage box with contact paper or scrap fabric to indicate its contents.

Personal calendar

To keep track of events such as birthdays and anniversaries, use the Bob Address Book. In the notes part of an address, enter the birthdays and anniversaries for the people who live there. Then at the beginning of each month, you can have the Bob Address Book show you which people have birthdays or anniversaries that month.

Safety deposit box

Important papers such as the following should always be kept in a safety deposit box: personal documents such as birth, death, and marriage certificates; divorce decrees; military papers; professional licenses and certificates; and citizenship and adoption papers; legal documents such as titles to vehicles and property; property deeds; mortgages; leases; and contracts; financial papers, including stock and bond certificates and certificates of deposit; insurance papers including policies as well as inventory, photos, and receipts for items you might need to document; and a copy of your will (the original should be kept with your attorney because in about half the states (and provinces) your safety deposit box is sealed in the event of your death even if the box is also in your spouse's name).

You should also use the Bob Financial Guide to keep lists of these important documents and where the documents are stored.

Shopping

Buy nonperishable supplies in bulk--light bulbs, paper goods, stamps and mailing supplies, greeting cards, and so forth. In addition to saving money, you won't have to spend time shopping for toilet tissue and paper towels each week. When you see an item that would make a good birthday gift, consider buying several so you don't have to shop each time your child is invited to a party.

To make the most of your shopping trips, use the Bob Household Manager to keep lists of things to buy, clothing sizes, and even books to read and videos to rent, and then print out these lists and carry them with you. You can also make lists of sizes, likes, and dislikes for family members, and people for whom you routinely buy gifts, to take when you go shopping. Update these lists periodically.

To avoid last-minute runs, stock up on supplies such as stamps and heat-and-serve dinners.

Tax deductions

Use colored pens to help you sort tax-deductible items.

Telephone

Keep frequently used phone numbers in a photo cube next to the telephone. The six sides allow room for a lot of numbers, and the cube is too big to be easily misplaced.

Tools

Keep small tools and pieces of hardware in a clear plastic shoe bag. Attach the bag to a wall or the back of a door.

Hang tools and utensils on pegboards, and paint a black silhouette of each directly on the board. You'll know at a glance where to return something--and when something is missing.

Valuables

Make a hiding place out of an old book. Cut a rectangle out of the pages with a ruler and utility knife. Coat the edges of the pages with thin wallpaper paste and glue the edges together.

Warranties

Keep all warranties in one central place such as your home office. Make a warranty file organized by items in a particular room (e.g., living room, master bedroom), by types of items (e.g., large appliance, electronic), or alphabetically by names of items.

Wallet contents

Photocopy all the important cards in your wallet. It's faster and more thorough than making a list. If you lose your wallet, then you'll have an exact copy of what you need to replace. Keep your checkbook, wallet, and credit card case in separate places to reduce the risk of losing everything at once.

Appointments

To cut down on waiting time in the doctor's office, try to get the first appointment of the day or call ahead before you go to make sure the doctor is on schedule.

Children

Set a "roomtime" instead of a bedtime for the kids--they can stay up, but they're confined to their rooms, where they may play or read. Now you have some free time for yourself.

Cleaning supplies

A spray bottle filled with a water-ammonia or a water-bleach solution saves time in both the kitchen and the bathroom. Use it to clean up dirt and spills immediately.

Whenever possible, do two jobs at once, for example, make the most of telephone time if you have a kitchen phone by unloading the dishwasher, wiping the counter, polishing the silver, or working on a basket of mending tasks during a call. Or use two hands at once--for example, save time by applying a cleaning solution with a rag in one hand and wiping it off with a clean rag in the other.

Cooking

Keep a file of quick and easy recipes, and select seven recipes at the beginning of the week. Use the recipe ingredients as the basis for a shopping list.

Dishwashing

Instead of unloading dishes and flatware from the dishwasher to the cupboards, take dishes and the utensil caddy straight to the table when you reset it.

Driving

If you get bored while driving, listen to books on tape. These tapes are often a good summary of popular books and can serve as an interesting and productive way to fill your driving time.

Fax machine

By using a fax machine, you can often get a quicker answer than if you use the phone or the mail. Write your question or request and then ask that the receiving party transmit the response on the very same paper.

Ironing

Keep a folding ironing board in the bedroom. You can do a touch-up without wasting time heading for the laundry room and setting up the iron.

In the laundry room, keep a rack near the dryer to hang clothes. If you hang no-iron items immediately, you won't have to press them. A shot of spray starch on collars and cuffs gives them an extra finishing touch; be sure to button collars so that they'll lay neatly.

Line waits

Use the time spent waiting in line or in the car productively. Always have a book to read and a notebook to make notes and lists. Bring postcards to jot notes to friends or to take care of minor business matters that might take more time to transact by phone.

While you're at the doctor's office, have a staff member call your prescription in to the pharmacy. You'll be able to pick up the prescription without unnecessary waiting.

Mail

Read mail with a highlighting pen and mark anything that needs action--a bill to be paid, an item to be ordered, an appointment, or an invitation--and then transfer that information to a calendar.

Use the Bob Letter Writer to make a template of any form or letter that you need regularly--for example, a permission slip for school--and store it in your computer so that you can fill in the blanks and print it when needed.

Packing

To be prepared for travel, keep your passport and a toiletry kit filled with essential items packed in your suitcase. You won't have to search for them at the last minute.

Shopping

If you bag your own groceries at the supermarket, group similar items in the same bag so that frozen items can be unpacked quickly and things that need refrigeration can be put away all at once.

If you're in the middle of decorating or renovating, keep an envelope containing fabric swatches and paint chips in the car glove compartment to always have them with you.

Do your grocery shopping during the times that are most likely to have no lines such as early morning or late evening.

Check cat for signs of health

Before getting a cat, always check it for signs of good health:

- * Clean, dry ears.*
- * Bright, alert eyes without discharge.*
- * Smooth coat.*
- * Damp nose.*
- * Pink mouth with white teeth.*
- * No lumps in the abdomen (sign of hernia).*
- * Feces should be well formed.*
- * Unsterilized males should have both testicles.*

Whether it's a kitten or an adult, take the new cat directly to the vet, no matter from whom it has been acquired, because it may be carrying a disease that has not been detected. If the cat does have a disease, ask the vet how to protect others from exposure. Isolating a new pet (in terms of its litter pan and dishes) for 2 weeks is a good idea.

Brushing

Use a soft-bristled hairbrush on the cat's body. To break up matted fur on a long-haired cat, use a wide-toothed comb.

Clipping claws

Untrimmed claws can grow into the pawpad, so they should be clipped regularly. Cats' nails grow at different rates, but as a general rule clipping should be done approximately once a month. Special clippers are available for this purpose, and your vet can show you how to use them. The main idea, as with human nails, is not to trim too close to the quick (the flesh under the fingernails).

Feeding

Ask your vet about whether to feed your cat dry food only (good for teeth and gums) or to include canned food. Ask about how to avoid the risk of feline urinary tract disease, more common in males and connected to diet. Always provide plenty of fresh water, particularly if your cat eats a lot of dry food. Do not substitute dog food for cat food because the nutrients are inappropriate. Do not give your cat bones, especially poultry bones, which are particularly likely to choke a cat. Also, do not feed your cat raw fish, which may carry parasites, or raw meat, which may cause toxoplasmosis (fresh, raw organ meat from the butcher is an exception).

Feeding bowls, washing

Serve food in metal or ceramic bowls, because some cats are allergic to plastic and it retains the odor of the food or washing solution plus some soaps or detergents. Wash the bowls thoroughly each day. Double bowls (one side for water and one side for food) are less practical than bowls that are

separate.

Illness

Call your vet if you observe any of the following signs:

- * unusual behavior, sudden viciousness, lethargy*
- * abnormal (e.g., bad smelling, creamy, bloody) discharge from any part of the body*
- * abnormal lumps, limping, or difficulty getting up or lying down*
- * loss of appetite*
- * noticeable weight loss or gain*
- * excessive water consumption*
- * difficult, abnormal, or uncontrolled waste elimination*
- * harsh breathing or coughing*
- * excessive head shaking, scratching, and licking or biting of any part of the body*
- * sores, ragged or dull coat, or loss of hair*
- * foul breath or excessive tartar deposits on teeth*

Maintaining litter pan

A cat's preferences to the type of litter pan (covered or not) and the type of litter (cedar, clay, or clumping) may vary, but they prefer litter pans in a private area (the bottom of a closet will do if nothing else is available). Many cats will not use a pan that is too soiled, so remove clumped litter or feces and stir the pan daily. Change litter that's moist or odorous at least once a week. An unlined litter pan should be cleaned with disinfectant; rinse thoroughly because the remaining odor may bother the cat and the remaining solution may be toxic.

Parasitic infection

Signs of parasitic infection, such as scratching, bald spots, or skin inflammation, may or may not be evident. Flea treatments such as powders, sprays, dips, treated collars, or pills should be recommended by your vet. Vacuum regularly and thoroughly, and use aerosol defleaing sprays on bedding. Fleas harbor tapeworm eggs, which can affect pets. Lice may or may not cause itching but will suck blood, thus weakening a cat. Your vet may have to detect and treat lice. Ticks are usually picked up in low-lying shrubbery. They hide in the neck, between toes, in ears, and in the folds between the legs and body. A dip may help. Ear mites cause scratching and open sores in the ears. Mites cause holes that can lead to potentially fatal bacterial infections. Your vet may have to detect and treat ear mites.

Routine physical and dental checkup

For the first visit, a regular veterinary examination should include a stool analysis. During annual visits, the skin, extremities, and the inside of the mouth and ears should be thoroughly examined. The cat's temperature

should be taken, its abdomen palpated, and its heart monitored with a stethoscope. The cat's teeth should be checked, and a scaling (to remove tartar) may be recommended every few years.

Sterilization

Surgical sterilization reduces a number of behavioral and medical problems, but it does not affect the cat's natural personality or lead to obesity. The veterinarian may recommend sterilization if a cat has a congenital defect or a difficult personality that hampers breeding. Sterilization also prevents unwanted litters. The surgery should be done as early as possible, between age 6 months and 1 year. For a detailed brochure, entitled Pethood or Parenthood, send a stamped, self-addressed envelope to The American Veterinary Medical Association, 930 North Meacham Road, Schamburg, IL 60196. (In Canada write to the Canadian Veterinary Medical Association at 339 Booth St., Ottawa, Ontario, K1R-7K1.)

Traveling

Before traveling with your cat, accustom it to traveling in a carrier in the course of several short trips. Dabbing some butter on your cat's paw will keep it busy licking it off and settle it down for the trip. While traveling, your cat should always wear a collar with identification. Nearly every state and province has laws on the entry of animals, so if you are traveling between states or provinces, call or write to the State Veterinarian, State Department of Animal Husbandry, or other authority. (For additional information see "Packing and Moving" under "Moving.") Don't forget bowls, dry food, wet food, litter, a can opener, a brush, and toys. For car trips, give your cat its main meal at day's end, and provide small portions of food and water every 2 hours. If you're staying in hotels, be sure pets are allowed, bring spray room deodorant if you will be staying overnight, and leave a "Do Not Disturb" sign on the door while you're away.

Airplane travel

A cat must be at least 8 weeks old and weaned at least 5 days before it can travel by air; check with the airline for regulations. The cage should be strong; have a handle; be large enough for the animal to stand, turn, or lie down; and have a leakproof bottom covered with absorbent material and ventilation on opposite sides. Label the cage "Live Animal" with an arrow showing the upright position and your identification. Check with your vet for feeding instructions.

Vaccination, feline calicivirus, feline pneumonitis, and feline viral rhinotracheitis

Be sure to vaccinate your cat against these diseases because they are highly contagious. Signs of disease include respiratory problems.

When to vaccinate: once at age 8-10 weeks, again at 12-16 weeks, and then annually.

Vaccination, feline leukemia virus

A disease of the immune system, feline leukemia virus increases susceptibility to other diseases. Signs of disease include weight loss, illness, lethargy, and diarrhea. A blood test will reveal the presence of this disease. Ask your vet about testing for this disease every 1-3 years. Even indoor cats need regular vaccinations because owners can transmit diseases from outside.

When to vaccinate: once at age 8 weeks, again at 12 weeks and 24 weeks or again at 13-14 weeks depending on type of vaccine, and then annually.

Vaccination, feline panleukopenia

Vaccinate your cat against feline panleukopenia, also known as feline distemper, infectious enteritis, and cat fever. This disease is highly contagious, directly or indirectly, for up to 1 year via dishes, bedding, and the hands and clothing of handlers. Most common in warmer months, it often affects kittens, sick cats, and indoor cats that have not had a booster shot. Older, outside cats often acquire a natural immunity. Feline panleukopenia is not transmissible to humans. Signs of disease include loss of appetite, fever, lethargy, and vomiting. Fatality is 50-70%. Even indoor cats need regular vaccinations because owners can transmit diseases from outside.

When to vaccinate: once at age 8-10 weeks, again at 12-16 weeks, and then annually.

Vaccination, rabies virus

The rabies virus can attack the central nervous system of all warm-blooded animals and humans. Signs of infection include abnormal behavior: wild animals, for example, might appear tame or friendly. With "furious" rabies animals froth at the mouth and bite, but with "dumb" rabies the first sign of disease is usually paralysis of the lower jaw that spreads to limbs and vital organs. Rabies virus is transmitted by saliva, usually by a bite from an infected animal, and is fatal.

When to vaccinate: once at age 12 weeks, again at 64 weeks, and then annually, or every 3 years, depending on type of vaccine.

Bathing

How often you bathe your dog depends on the dog's environment and the length of the dog's coat. Ask your vet for recommendations. When your dog needs bathing, use a mild soap and gently insert cotton in each of the dog's ears to keep out water.

Bedding or housing

For a puppy, provide a blanket-lined carton and include a hot-water bottle for cuddling and perhaps a ticking clock, which will remind the puppy of its mother's heartbeat--unless you are prepared to have your puppy sleep on your bed permanently. Because dogs are affected by heat more quickly than humans, they need a shady spot for resting during summer days as well as plenty of water. Winter quarters for an outdoor dog should be dry, well insulated, protected from the wind, facing away from the north, and pushed up against a protecting wall if possible. Tack a piece of fabric over any opening as a curtain. Old or nursing dogs could benefit from an infrared bulb or regular electric bulb in extreme weather conditions. Bedding should be raised at least 4 inches from the floor and be at least 5 inches thick. You can use cedar or pine shavings or a rug.

Brushing coat

How often you brush your dog's coat depends on the dog's environment and the coat's length. You can use gloves or even a vacuum cleaner to pull out loose hair. For a long-haired dog, a comb or wire brush instead of a regular brush may be needed to remove matting.

Check dog for signs of health

Before getting a dog, always check it for signs of good health:

- * Eyes should be clear, bright, and free of matter (no scars or light spots on cornea).*
- * Body should be well proportioned (a body that's too large may indicate the presence of parasites).*
- * Ears and nose should be clean and free of discharge.*
- * Dog should not be shaking its head (may indicate parasites).*
- * Skin should be clear and the dog should not be scratching.*
- * Coat should be glossy without any general or spotty hair loss (indicates parasites).*
- * Teeth should be bright, breath should smell clean, and gums should be pink (white gums may indicate parasites).*
- * Stool should be well formed without mucous or blood.*
- * Legs should be straight.*
- * Test for deafness in breeds prone to this problem (such as white or blue-brown breeds).*
- * Puppies should not be too shy (may indicate sickness) or too aggressive.*

You should have a vet check the dog before purchase. An older, housebroken dog is better for some families. To find a qualified breeder in your area, check with the American Kennel Club, 51 Madison Avenue, New York, NY 10010. (In Canada check with the Canadian Kennel Club, 100-89 Skyway Ave., Etobicoke, Ontario, M9W-6R4.)

Clipping nails

Trim nails according to your vet's instructions.

Canine heartworm medication for outdoor dog

Carried by mosquitoes, canine heartworm usually affects outdoor dogs (particularly hunting and working dogs) and is often fatal. Signs of infection include coughing, sluggishness, and labored breathing. The vet may give medication for this condition as a preventive measure, after the annual blood test.

Feeding

New puppies who are weaning should be given light, frequent meals--up to six a day--that may include milk, cereal, dog food, or ground meat. At about age 4 months, meals may be cut back to three a day, and between age 6 months and 1 year, they may be cut down to two a day. Most dogs eat only once a day when a year old, but this may vary. These are only general guidelines; your vet is your best source of advice about feeding your dog.

Flea treatment

Fleas harbor tapeworm eggs that can irritate your pet. Flea treatment may vary according to area. Dogs in warmer climates may be treated more frequently, so consult with your vet. The usual treatments include powders, sprays, dips, treated collars, or pills. Vacuum your carpet regularly and thoroughly, and use aerosol defleaing sprays on bedding. You may need to call in a professional to deflea your house and even your lawn and garden. If your dog ever rides in the car, don't forget to treat your car, as well.

Housebreaking

Complete housebreaking usually takes 4-6 weeks; have patience and expect accidents. Puppies under 12 weeks old will be the slowest to respond, whereas those over 6 months may learn in only a few days. Petting and rewarding with a small food treat may help. In the event of an accident--and within 30 seconds--scold the dog or slap your hand with a paper and then immediately take the dog to the place where it should go.

Walk your dog first thing in the morning, once or twice after each meal, after playing and before retiring at night, and particularly if the dog shows signs of restlessness. The dog will pick up on the habit of going out. Keep in mind that dogs tend to re-mark the same spot. Until housebreaking is complete,

it's best to confine the dog to a small area with a washable floor. Veterinarians, breeders, local training clubs, YMCAs, and recreation centers can give you leads about classes, costs, and requirements for additional training.

Illness

The most common problems in puppies are vomiting (if more than 2 or 3 times, your puppy has probably swallowed a foreign object) and diarrhea (generally due to overfeeding, teething, or intestinal parasites).

Call your vet if you notice any of the following signs:

- * unusual behavior*
- * sudden viciousness*
- * lethargy*
- * abnormal (e.g., bad smelling, creamy, bloody) discharge from any part of the body*
- * abnormal lumps*
- * limping, or difficulty getting up or lying down*
- * loss of appetite*
- * noticeable weight loss or gain*
- * excessive water consumption*
- * difficult, abnormal, or uncontrolled waste elimination*
- * harsh breathing and coughing;*
- * excessive head shaking, scratching, and licking or biting of any part of the body*
- * loss of hair*
- * sores*
- * ragged or dull coat*
- * foul breath*
- * excessive tartar deposits on teeth*

In older dogs, among the first problems is hearing loss. Cleaning the ears of wax may alleviate the problem. If not, ear mites may be the problem. Older dogs should also be seen by the vet if they have any of the following symptoms: increased respiration with shortness of breath (could be heart trouble); coughing (congestive heart failure); fainting spells, sudden collapse, or paralysis (heart, cerebral stroke); increased thirst and urination (nephritis); halitosis (bad teeth or gums); or a urine odor from the mouth (uremia).

Lyme disease inoculation in high-risk areas

Deer ticks, which cause Lyme disease, are particularly small and hard to detect. Like all ticks, they may be picked up from low-lying shrubbery. If you live in a high-risk area for deer ticks, ask your vet about Lyme disease inoculation.

Parasitic infection

Signs of parasitic infection, such as scratching, bald spots, or skin inflammation may or may not be evident. Lice may or may not cause itching but will suck blood, thus weakening a dog. Your vet may have to detect and treat lice. Ticks are usually picked up in low-lying shrubbery. They hide in the neck, between toes, in ears, and in the folds between the legs and body. A dip may help. Ear mites cause scratching and open sores in the ears. Mites cause holes that can lead to potentially fatal bacterial infections. Your vet may have to detect and treat ear mites.

Routine physical and dental checkup

For the first visit, a regular veterinary examination should include a stool analysis. During annual visits, the skin, extremities, and the insides of the mouth and ears should be thoroughly examined. The dog's temperature should be taken, its abdomen palpated, and its heart monitored with a stethoscope. Blood may be tested for heartworm. Also, the dog's teeth should be checked.

Sterilization

Surgical sterilization--spaying for females or castration for males--reduces a number of behavioral and medical problems, but it does not affect the dog's natural personality or lead to obesity. For female dogs, spaying eliminates the problems associated with heat periods. The veterinarian may recommend sterilization if a dog has a congenital defect or a difficult personality that hampers breeding. Sterilization also prevents unwanted litters. For a detailed brochure, entitled Pethood or Parenthood, send a stamped, self-addressed envelope to The American Veterinary Medical Association, 930 North Meacham Road, Schamburg, IL 60196. (In Canada, write to the Canadian Veterinary Medical Association, 339 Booth St., Ottawa, Ontario, K1R-7K1.)

Traveling

Nearly every state and province has laws on the entry of animals, so if you are traveling between states or provinces, call or write to the State Veterinarian, State Department of Animal Husbandry, or other authority. (For additional information, see "Packing and Moving" under "Moving.") Don't forget to bring bowls, dry food, wet food, a can opener, a leash, a brush, and toys. For car trips, give your dog its main meal at day's end, and provide small portions of food and water every 2 hours.

Never leave your dog in a hot car, and do not allow your dog to ride with its head outside the car window (too much cold air can cause illness, and dirt particles in the eyes, ears, or nose can cause injury or infection). Stop often for exercise, and bring a leash and collar with a license and identification.

If you're staying in hotels, be sure pets are allowed, bring spray room deodorant if you will be staying overnight, and leave a "Do Not Disturb" sign

on the door while you're away. During camping trips, your dog may be bitten or injured in some settings, so keep your dog leashed on the trip and test for internal and external parasites (e.g., roundworms, hookworms, heartworms,

ticks, fleas) upon return ■

Airplane travel

A dog must be at least 8 weeks old and weaned at least 5 days before it can travel by air; check with the airline for regulations. The cage should be strong; have a handle; be large enough for the animal to stand, turn, or lie down; and have a leakproof bottom covered with absorbent material and ventilation on opposite sides. Label the cage "Live Animal" with an arrow showing the upright position and your identification. Check with your vet for feeding instructions.

Vaccination, bordetellosis

Bordetellosis is transmitted by contact with nasal secretions of infected dogs. Signs include coughing and nasal discharge.

When to vaccinate: at age 6-8 weeks, at 10-12 weeks, at 14-16 weeks, and then annually.

Vaccination, distemper

Signs of distemper include respiratory problems, vomiting, and diarrhea. This highly contagious disease is fatal 50% of the time and even when not fatal can have lasting effects.

When to vaccinate: at age 6-8 weeks, at 10-12 weeks, at 14-16 weeks, and then annually.

Vaccination, infectious canine hepatitis (CAV-1 or CAV-2)

Infectious canine hepatitis is transmitted by contact with contaminated objects. Signs of the disease include whiteness or cloudy eyes, respiratory tract infection, vomiting, diarrhea, depression, and loss of appetite. This disease can cause lasting effects including heart damage and is often fatal.

When to vaccinate: at age 6-8 weeks, at 10-12 weeks, at 14-16 weeks, and then annually.

Vaccination, leptospirosis

Leptospirosis is transmitted by any contact with the urine of infected animals. Signs include vomiting, impaired vision, and convulsions. The disease may also cause kidney failure.

When to vaccinate: at age 10-12 weeks, at 14-16 weeks, and then annually.

Vaccination, parainfluenza

Parainfluenza is transmitted by contact with nasal secretions of infected dogs. Signs include respiratory ailments.

When to vaccinate: at age 6-8 weeks, at 10-12 weeks, at 14-16 weeks, and then annually.

Vaccination, rabies virus

The rabies virus can attack the central nervous system of all warm-blooded animals. Signs of infection include abnormal behavior: wild animals, for example, might appear tame or friendly. With "furious" rabies animals froth at the mouth and bite, but with "dumb" rabies the first sign of disease is usually paralysis of the lower jaw that spreads to limbs and vital organs. Rabies virus is transmitted by saliva, usually by a bite from an infected animal, and is fatal.

When to vaccinate: at 12 weeks, at 64 weeks, and then annually or every 3 years, depending on type of vaccine.

Walking an indoor dog

The dog should be walked at least twice a day and preferably more often, especially for larger dogs.

Collapsible case

If you'll be shopping for souvenirs or other items, pack a small canvas bag inside your suitcase to carry them back.

Emergencies

Carry 1 day's worth of clothing changes and your toiletries with you even if you check the rest. Luggage can get lost, so you'll want to have a change of clothing with you just in case.

First-class hotels

Many hotels provide toiletries such as shampoo and conditioner. First-class hotels sometimes offer an amenities kit free of charge that includes things such as a toothbrush and toothpaste.

Heavy appliances

Call the hotel where you are staying to find out whether hair dryers and irons are provided.

Important papers

Pack a list of your traveler's check numbers and a photocopy of your passport in your luggage (in addition to the originals you carry in a purse or pocket).

Jewelry

Studs or small pierced earrings can be poked into a piece of fabric.

Kids' outfits

To save time when traveling with young children, pack coordinated outfits--top, bottom, underwear, etc.--in resealable plastic bags. The clothing for the day is all gathered in one place, and soiled outfits can be returned to the bag for laundering.

Laundry bags

A couple of plastic bags with drawstrings can hold dirty items. A resealable plastic bag can hold damp items. Sprinkle some baking soda inside laundry bags before you leave home--it will help the soiled items smell fresher.

Leaky bottles

To avoid leaks, squeeze excess air out of plastic bottles and pack them in resealable plastic bags.

Luggage, choosing

Handles should be comfortable to grip. Luggage with wheels should be of comfortable height, easy to steer, and have a detachable pullstrap; wheels should be large and sturdy. If the bag has a pull-out arm or cord that turns it

into a luggage cart, make sure it is big enough and long enough to accommodate your other pieces. The luggage's fabric should be easy to clean, the front zipper and outside pockets should be lockable, and the shoulder strap should be wide and easily detachable.

Luggage, soft- vs. hard-sided

Although soft-sided suitcases are lighter in weight, hard-sided suitcases will protect your garments from wrinkling.

Luggage strap

A luggage strap will keep your case closed in case the lock snaps or zipper breaks. It also makes the bag easier to identify on the conveyer belt.

Packing light or not

Although the conventional advice is to pack light, if you are going to a single destination and will remain there, it doesn't make much difference. You may prefer to have everything you might need--an extra sweater or another pair of shoes--rather than spend time and money purchasing emergency items.

Packing list

To keep track of your possessions, make a copy of your packing list (from your computer) and tape it somewhere inside your luggage. Use it when repacking to make sure you didn't leave anything in the bathroom, in a drawer or closet, or under the bed.

Packing order

Put heavy items at the bottom of the suitcase and light things on the top.

Saving space in luggage

Wear your heaviest items rather than packing them.

Shoes

To avoid staining clothes with dirt or shoe polish, pack shoes in plastic bags.

Small and fragile items

Pack jewelry, stockings, and socks inside shoes.

Theft

Luggage stored in the small front closets of a plane is not ensured against theft or loss. Put a large nametag on it, or even secure a piece of ribbon on the handle. This way no one will mistake your piece for theirs. If you are concerned about theft from your suitcases, you may want to consider putting your suitcases in a large, sealed plastic bag, or wrapping packing tape around your suitcases a few times. This will probably be enough of a deterrent to discourage anyone from going through your suitcases. Furthermore, conventional suitcase locks have proven ineffective against

thieves.

Toiletries

Try to find toiletry items that won't spill--for example, nail polish remover in foil packets, makeup remover pads, alcohol wipes, baby wipes (which are also excellent spot removers), and antacids in tablet rather than liquid form.

If you travel frequently, have a set of toiletries just for traveling, including prescriptions and duplicate eyeglasses. Label and fill small plastic bottles with enough shampoo, lotion, astringent, and so forth to last the length of your trip.

Underseat luggage

If you want to avoid the expense of a fancy underseater, or if you find all the compartments of carry-on bags more complicated than necessary, purchase a 24-inch-long duffel bag to use for this purpose instead.

Weather conditions

Your travel agent and the guidebooks will give you a general idea of weather conditions at your destination, but make a last-minute check with a local source--local weather information, the airline, or the hotel--in case there is an unusual weather condition in the area.

Wrinkling and creasing

Soft clothes such as knits and lingerie can be rolled with tissue paper rather than folded. For clothes that will be folded, place tissue paper between each folded layer, and then use plastic trash can liners between the packed layers of clothes. Always fasten hooks and buttons before rolling or folding. If you do have wrinkles, steam them out in the bathroom while showering.

Blanket

If you are going to be driving in cold weather, it's a good idea to have a blanket to keep you warm in case your car breaks down.

Cat-box filler or sand

To help provide traction on ice and snow, keep a bag of cat-box filler or sand in the trunk during the winter. Make sure the sand is kept dry or it will freeze and be of no use.

Chains

Even if you have good winter tires, chains are sometimes still needed for driving in heavy snow. If you are driving to a ski hill, it is a good idea to carry chains.

Cross-shaft lug wrench

To remove lug nuts when changing a tire, carry a cross-shaft lug wrench. A cross-shaft lug wrench is preferable to a single shaft one because it makes it easier to use your body weight to loosen the nuts. Remember to always remove nuts in a crisscrossing pattern.

{ewl uwmf, MVWMF11, home.wmf}

1. *single shaft lug wrench*
2. *cross shaft lug wrench*

Duct tape

A roll of duct tape in the trunk can be handy for emergency hose repairs.

Fan belt

You should consider carrying a spare fan belt because many tow trucks do not carry them.

Fire extinguisher

A fire extinguisher could save lives. If the fire is near the fuel tank, however, it is too dangerous to put out with a fire extinguisher--just quickly get away from the car.

First-aid kit

A first-aid kit should contain at least scissors, gauze, bandages, and alcohol wipes.

Flares

Local laws frequently have restrictions on the use of flares on highways, so you may be better off carrying a flashlight with a red blinker. Also consider carrying roadside reflectors. In a pinch, a waxed milk carton will burn for about 15 minutes, acting as a temporary flare. Turning on the interior lights in your car can also help.

Flashlight

At the least, you should have a flashlight and spare batteries in your car. Or consider getting an electric lantern. If you get an electric lantern, it should have a hook that lets you attach them to the inside of the hood; if your car breaks down at night, this kind of lantern will be invaluable.

Fluids

Always carry some engine oil, coolant, and water (for the radiator) in the trunk. But if you maintain your car, it is unlikely that you'll suddenly run low on any of these fluids.

Jack

Ideally, you should use the jack that came with your car. But if you need to buy one, a hydraulic jack is a good value. Make sure that the one you buy fits your car's bumper. A jack is basically used only for changing a tire; never crawl under a car that is supported by only a jack.

{ewl uwmf, MVWMF11, home.wmf}

- 1. hydraulic jack*
- 2. tripod jack*
- 3. scissor jack*

Silicone spray lube

In cold weather, silicone spray lube may come in handy for unsticking frozen locks and hinges, among other things.

Spare tire

Never drive your car without a spare tire, and check it periodically to make sure that the tire is functional. Also check that you have the tools that you'll need to change a tire. These tools should include at least a wrench to loosen and retighten the wheel nuts.

Tool kit

A couple of screwdrivers, a hammer, a wrench, and pliers could help you with a breakdown. If you can do minor repairs, extra valve caps and hose clamps could also prove useful.

Windshield cover

A windshield cover serves two purposes. The decorative side can be used to keep the inside of a parked car cooler on a sunny day. The opposite side of the cover should say something like "Please call for help" and is invaluable if your car breaks down.

Air conditioner

Manufacturers recommend that you run the air conditioners in your car for at least five minutes every week, even in winter, to keep the hoses pliant and the moving parts lubricated. Keep the condenser and the car grating clear of leaves, bugs, and dirt to allow proper air flow for the air conditioner.

If you suspect any problems with your air conditioner, have it checked out by a mechanic. Most air conditioning units are sealed, and it is dangerous to open them up yourself.

Air filter

An air filter keeps bugs, leaves, dirt, dust, and other small objects out of your car's air intake. If the filter is dirty, vital engine parts can become fouled with dust and grit, considerably reducing gas mileage. To check the air filter, remove the wing nut on the top cover of the air cleaner, release the clips, and remove the cover, giving you access to the filter. If dirty, replace with a new, top-quality filter. If you cannot replace the air filter right away, turn it upside down and lightly tap it to shake the dirt loose. Replace the cover, clips, and wing nut carefully, making sure all parts fit tightly.

- {ewl uwmf, MVWMF11, home.wmf} 1. air filter*
- 2. pvc air filter*
- 3. idle stop solenoid*
- 4. pvc valve*
- 5. gaskets*
- 6. idle mixture screws*

Alternator

The alternator recharges the battery and provides power needed to run the headlights, the stereo, and so on. A burning odor could indicate an alternator problem, though it could also indicate trouble with areas such as the brakes, the wiring, or the water pump.

If you see the red light on your dashboard that reads Charge, Alt, Alternator or Battery, you probably have about a half hour of driving time left.

**Do not
stop the
engine** --because you

will not have enough power to restart it--but do cut back use of power (shut off the air conditioner or heater and the radio, and avoid using power windows and seats). If you are far from home you can have a gas station extend your driving time by giving the battery another half hour's worth of charge; on your way home, cut back use of power, and drive without stopping. Then have a mechanic check the alternator, regulator, belts, and fuses.

A temperature warning light may indicate a broken belt (because the same belt that drives the alternator also drives the water pump). You will need to

stop driving to prevent overheating.

{ewl uwmf, MVWMF11, home.wmf}

- 1. alternator*
- 2. distributor cap*
- 3. distributor cable terminal*
- 4. alternator belt*
- 5. point set*
- 6. rotor*
- 7. condensor*
- 8. spark plug*

Automatic transmission fluid

Automatic transmission fluid is used to lubricate the many moving parts inside the transmission. The transmission should last the life of the car, but if the fluid level is too low, gears will be damaged and the transmission may require an expensive repair.

If the fluid level is consistently too low, there may be a leak. When you check the fluid level, see that the existing fluid is clear and red-colored. If it looks dark, smells burned, contains bubbles, or is streaked with tiny metal particles, have a transmission specialist look at it.

Battery

A maintenance-free, sealed battery may have a charge indicator. A green center on the indicator port means a full charge, no green center means a charge is needed, and a translucent or light-colored indicator with neither a dark nor a green spot means the battery needs replacing. If you don't have a "maintenance-free" battery, water and acid levels must be maintained to keep the battery fully charged. See the manual for information on how to maintain an older type battery.

Battery terminals and cables

Check for cracks in the battery housing and loose cables. To clean the crud from the top cover and around the terminals, apply a mixture of baking soda and water with a brush. Be careful not to get any of this crud on your hands or clothes; but if you do, wash it off immediately. Do not pry terminals from the post with anything but a special puller tool. After the terminals are cleaned, smear petroleum jelly around them to prevent buildup.

Brake fluid

Consult your car manual to see where the brake fluid is located. The fluid should be within a ½ inch of the top of the reservoir. The brake fluid level should stay at much the same until your brakes start to wear out, at which time the level will start dropping. Keep an eye on the brake fluid level, and if it gets toward the "minimum" marking, then get your brakes inspected.

Brake fluid is usually refilled when you have your brakes checked or serviced, but if you want to refill it yourself, be sure to get the right kind of brake fluid (the manual should say the type, but not necessarily the brand), and be careful not to contaminate the existing fluid with any dirt. Dirt in the brake fluid can damage your brakes.

Brakes, disc and drum

All of the following symptoms are probably due to excessive brake wear. Other possible causes are indicated where applicable. In all cases, a mechanic should inspect the brakes.

- * Grinding sounds are heard.*
- * Red brake warning light goes on. (May also indicate brake fluid loss.)*
- * Squealing sounds are heard when driving or when pressing on the brake pedal.*
- * Pedal pulses are felt (feels as if you were pressing, then releasing).*
- * Pedal drops away under foot as you break.*
- * Pedal is lower than normal.*
- * Pedal is difficult to depress.*
- * Pedal "grabs" under normal pressure, as if you have stomped on it.*
- * Pedal feels spongy rather than firm. (May also indicate loss of brake fluid.)*
- * After pedal is released, brakes continue to respond as if foot were still pressed down. (Parking brake may be on or jammed.)*

Catalytic converter, muffler, and exhaust pipes

Auto emission control systems are regulated by state and federal anti-pollution laws, and a defective or clogged converter will probably not pass inspection. Most are covered by manufacturers' warranties and are designed to last for at least five years or 50,000 miles (80,000 km). Have all parts checked for loose connections and corrosion.

Clutch pedal clearance or free-play

Clutch adjustment can delay expensive replacement of the clutch and pressure plate. Use a 12-inch ruler to measure how far the clutch pedal is from the floor. Then, depress the clutch pedal until you feel resistance and measure again from that point. The difference should be between 7/8 and one inch. If the difference is greater than one inch, then have your mechanic adjust the clutch.

Engine belts

There are probably a number of different belts in your car engine. These may include belts for the air pump, the cooler, the starter, and power steering. Loose, worn, or frayed belts can cause trouble for your engine. Also, to see if a belt needs replacement or adjustment, check the belt tension. Lightly press your thumb against the belt midway along the longest length. If you can press down more than a ½ inch, the belt should be adjusted or replaced.

Radiator coolant

Coolant has antifreeze plus additives to prevent accumulation of scale (a flaky film that forms on metal), rust, and other pollutants. Because coolant loses its effectiveness over time, it should be replaced periodically. For most cars, you should use a half-coolant and half-water mixture. To be sure, check your manual. You can add coolant yourself, but be sure to look in your owner's manual for the various safety precautions. Never remove the radiator cap while the car is still hot.

The coolant needs to be changed every two to three years. It is probably best to get changed during a regular maintenance check.

Lights

For the sake of safety and compliance with the law, all exterior lights should be functional. These include headlights, taillights, flashers, and turn signals.

In addition, you should periodically check to see that your headlights are properly focused and aligned. Poorly adjusted headlights may shine in other drivers' eyes and may give you much less visibility at night. Have your lights checked and adjusted as necessary during the regular maintenance check.

Manual transmission oil

Failure to lubricate manual transmission parts regularly can result in hard shifting, worn gears and bearings, and failure of the clutch to engage. Over time, manual transmission oil may become contaminated.

Muffler and tailpipe

Visually inspect your muffler and tailpipe for leaks and corrosion.

Check for looseness as well as cracks and holes in the connecting pipe. You will hear a roar if there's a big problem, a rumble, buzz, or hiss if there's a small problem. Check the color of the tailpipe. If the tailpipe is black or sooty rather than light gray or white, the carburetor probably needs adjustment. While checking your tailpipe, be careful not to inhale exhaust.

Oil

A car engine uses up oil at a rate of about one quart per 1,000 miles (1 liter per 1600 km). If you don't have enough oil in your car, the engine won't be properly lubricated. Oil also contains rust inhibitors, corrosion inhibitors, and other additives that inhibit the buildup of gummy deposits and thus improves gas mileage. Check your oil every time you fill up.

If you use certain synthetic, refined, or recycled oils you could void your engine's warranty. Always follow the car manufacturer's recommendation when selecting motor oil, and try to stick to the same brand. Most newer cars need oil graded SF or SG (determined by the American Petroleum Institute [API] and based on qualities of additives). Oil is also ranked by viscosity (thickness or weight), determined by the Society of Automotive Engineers [SAE].

A diesel engine will need a CC or CD-grade oil, but for gasoline engines you should use SF-grade oil. In new engines, you should never use lower-grade oil; check your owner's manual for recommendations. The correct viscosity for your car is determined by the temperature you're driving in and complicated by the fact that you need a thin oil for cold starts and a thicker one for high-speed driving. If the oil is too thick, it won't squeeze between the parts at all. If it is too thin, it will simply run between the parts without lubricating them. Thicker oils have higher viscosity numbers (such as 40) and thinner oils have lower numbers, often followed by a W (such as 10W) to indicate suitability for winter-weather driving. The best solution is a multiple viscosity oil that covers a variety of situations.

A change in seasons might call for a change in viscosity. If you need to add oil more than once a month, you may have an oil leak or may be using oil that has too low a viscosity. You may need to change the oil more frequently if you do a lot of stop-start driving, haul heavy loads, drive often at high speeds or on dusty roads, or if your car is very new or very old. Check your manual or with the car dealer for the best oil for your car.

Oil filter

Regularly changing your oil and oil filter prolongs engine life and performance. The filter traps dirt, metal filings, and sludge, so only clean oil will circulate in the engine. The oil filter should be changed when the oil is changed.

Power steering fluid

A low level of power steering fluid can cause hard steering or erratic steering on turns. Use your owner's manual to find the power steering pump. Unscrew the cap to make sure the fluid is up to the fill mark on the dipstick. Power steering fluid should last quite a while. If the level of the fluid drops suddenly, get it checked out right away.

Radiator cap and hoses

Make sure that the radiator cap seals tightly. Before checking hoses, wait until the engine is turned off and cool. If they are leaking, bulgy, and soft, or hard and brittle, they need replacing. Also, check the clamps that hold the hoses into place for corrosion.

- {ewl uwmf, MVWMF11, home.wmf} 1. radiator*
- 2. radiator cap*
- 3. top radiator hose*
- 4. thermostat*
- 5. water pump*
- 6. fan belt*
- 7. bottom radiator hose*

Radiator grill

Leaves, insects, and debris that get caught in the fins of the radiator grill can interfere with the cooling system. Remove large pieces by hand and use a small brush or hose spray to get rid of smaller ones.

Spark plugs

Worn, dirty, or misfiring spark plugs, and cracked and worn wires can severely reduce engine efficiency, increase the chances of a breakdown, cause excessive fuel consumption and pollution, and cause the catalytic converter (which is part of the emission system) to overheat. The spark plugs should generally be replaced every two years. In some cars, the spark plugs are easier to change than in others. Check your owner's manual for details.

Springs, shock absorbers, and mounting bolts

If shocks are worn, stress is put on the chassis, steering is hard to control (the car may go off to the side or the steering wheel may have too much play), and tire wear increases. You can press the car at the front end, bounce it a few times, and then let go. If the car continues to bounce more than one time, your shock absorbers should be checked. This is also true if there is any difference between the way the two front or two rear corners bounce. Shocks should always be replaced in pairs.

Tires

Visually inspect the tires for lumps and bulges, uneven or excessive wear, nails, cuts, and other damage. Lumps and bulges may mean that layers of the tire are separating; have a mechanic examine your tire. Uneven or excessive wear may mean that realignment, replacement, or repair is necessary or that pressure is uneven. Sharp objects must be removed and all punctures repaired. Cars and light trucks are equipped either with inexpensive bias-ply tires or with better-quality bias-belted. Some vehicles come equipped with top-quality radial tires, which are more puncture-resistant, grip the road better, and are more reliable. To economize, consider quality retreads; modern bonding techniques make them safe and reliable.

The tire is marked with a series of letters and numbers that indicate its size and purpose. The letter P indicates that the tire is for use on a passenger car. The next three numbers measure the width of the tire in millimeters at its widest point. The next two numbers describe the ratio between the tire height and width. The letter K indicates that the tire is a radial tire. The next two numbers indicate the diameter of the wheel in inches.

Generally, an old tire is replaced with a new tire that is exactly the same size. If you are changing all four tires at once, you may make a change in size; consult with your tire dealer. Temperature rating (resistance to heat) and traction rating (ability to stop on wet pavement) are indicated by an A, B or C. The highest rating is an A.

Tread wear is shown as a number such as 200 or 300. A higher tread-wear number means that the tire will last longer but will also give a harder ride.

Speed ratings may be available on high-performance tires. The letter S means that the tire can handle a top speed of 112 mph (181 km/h), H means it can handle up to 130 mph (210 km/h), V means it can handle up to 149 mph (240 km/h); and Z means that it can handle speeds over 149 mph (240 km/h).

For a free tire ratings grading report, you can call the U.S. Auto Safety Hot Line, (202) 366-0123. (In Canada, call the Canadian Automobile Association office in your area.)

Tires, pressure

If a tire is not properly inflated, your car may be more difficult to steer, it may wander to one side, or the tires may vibrate. Also, low pressure reduces fuel mileage and increases tire wear, whereas excessive pressure can reduce your ability to stop safely and quickly. Proper tire pressure is listed in the owner's manual and can be easily and accurately checked with a well-made tire pressure gauge. Tire pressure should be checked when the tires are cool. Unscrew the safety valve cap, press the bulb at the stem of the gauge firmly into place, and hold it for a second until the calibrated rod pops out. The number on the rod reflects the tire's air pressure. If you have just driven for more than a few minutes, the pressure readings will be slightly higher. If all tires lose or gain pressure evenly, it is probably because of weather conditions, but if any one tire loses several psi in a month then it should be checked. Because of their construction, radial tires will often look slightly underinflated even when they're not.

Tires, rotating

To distribute wear evenly, have your tires rotated. This procedure makes tires last longer and also helps maintain proper wheel balance and alignment. The spare can be included in the rotation on cars with conventional spare tires.

Tires, treads

It is important to check for tread wear on your tires. Uneven tread wear can indicate uneven pressure, unbalanced tires, or a serious wheel alignment problem. It can also indicate a brake shoe, suspension, or steering mechanism problem. A good mechanic can determine patterns of tread wear and tell you whether your tires need realignment and balancing. Most modern tires have wear detectors built into the tread design. If your tires do not have this feature, an old trick is to insert a penny upside down into two adjacent tread grooves. If the treads do not cover any portion of Lincoln's head, they are worn too low. It is more accurate, however, to use a tread-wear gauge.

Here are a number of signs of tire wear, and possible causes:

- * Wear in middle of tread - Tire is routinely overinflated, or tire is too wide for rim.*
- * Wear along outer edges of tread - Tire is routinely underinflated.*
- * Edges of tread ribs sharp on one side, but rounded on the other side - Wheel camber or toe-in setting incorrect.*
- * Wear on one side of tread - Incorrect alignment.*
- * Patches of wear (random) - Tire is not balanced, or wheel rim is bent.*
- * Patches of wear (circular) - Faulty shock absorbers or other worn suspension parts*
- * Alternate ribs worn (on radial tires only) - May be normal, or may be caused by tires too wide for wheel rims.*

Wheel balancing

Balancing the wheels involves adding small weights to the edge of the wheel. If the wheels are not properly balanced then the car may shake. If a seat vibrates, then the rear wheels are probably imbalanced; if the steering wheel does, then the problem is usually in the front wheels. To check for misalignment, you can briefly let go of your steering wheel while driving to see if your car consistently drifts to one side. One simple thing you can do to prevent uneven tread is to periodically clean debris from the tires.

Window washing fluid

Using a cleaning solvent that contains antifreeze, clean the bottom of the washer reservoir if you see accumulated dirt there. When you work the spray, make sure the nozzle and hoses are clean. You can poke a thin piece of wire into the nozzle if it seems clogged. The spray should be adjusted so that it hits the center of the windshield.

Windshield wiper blades

Worn, dirty windshield wiper blades will not clean the windshield properly. The blades should be smooth and the cleaning edges should lie flush against the glass. Check the edges of the rubber blades for cracks, nicks, warping, and dirt. Both road dirt and the action of running blades over ice or packed snow will damage them, so keep the windshield clean. Replace the blades if they leave a streak on the windshield.

Windshield wipers

To keep the windshield wipers working smoothly, just apply a silicone spray.

Antibacterial ointment

The names of some antibacterial products end in "-sporin." Use these ointments on minor cuts and scrapes, and then cover with a bandage.

Antidiarrheal medication

Although various over-the-counter drugs exist for diarrhea, preparations containing bismuth (such as Pepto-Bismol®) are best. Consult your physician if your symptoms last more than 48 hours.

Antihistamine cream

Antihistamine cream will relieve itching from bites, stings, rash, and other minor skin problems. It also soothes the pain of sunburn.

Anti-inflammatory/swelling medication

Both aspirin and ibuprofen (such as Advil®) are recommended for muscle pain and arthritis, but aspirin has been linked to Reye's syndrome so is not recommended for children under 18.

Baking soda

For relief of occasional heartburn, indigestion, and stomach upset, keep baking soda or a brand-name item (in tablet or liquid form) on hand. Some of these have expiration dates. If antacid does not provide relief in 2 weeks, discontinue use and see your physician.

Baking soda can also be used in a bath to relieve itch. It can also be mixed with warm water until it has the consistency of paste and then dabbed onto the skin to relieve the pain of sunburn or stings.

Bandages, adhesive

Ready-to-use bandages, with a gauze pad attached to an adhesive strip, are for small bruises and scratches. They come in a variety of widths (usually ½" to 1"), shapes (extra large, medium, and small strips; small strips and circles; and some especially made to fit knuckles or fingertips), and colors (special designs for children). If you have small children, keep a box of the extra wide on hand for knee scrapes; otherwise, one box of assorted sizes is sufficient.

Bandages, stretch fabric

Stretch-fabric bandages are wrapped around a sprained muscle or joint, such as a knee, wrist, or ankle, and secured with a clip that generally comes with the bandage. They come in different sizes and widths, but a 2"-wide bandage covers most situations.

Betadine

A painless, disinfecting wound cleaner, betadine is preferred to hydrogen peroxide, which may damage tissue as it bubbles out.

Cough/cold/allergy medication

Antihistamines (for a sneezing, runny nose and itching), a decongestant (for a stuffy nose), an antitussive (to relieve a dry cough), and an expectorant (to loosen a cough) may help to relieve a cough, cold, or allergy. A pharmacist can help you find the right medicine for your symptoms. The expiration date printed on the label of the box or jar should be observed. Most medication just loses its potency, but some become toxic over time. Discard any tablets that are chipped, cracked, or discolored; capsules that have softened or cracked; ointment that has changed odor or appearance; tubes that are cracked, leaky, or hard; and liquids that have thickened or discolored.

Gauze bandage

A gauze bandage, which comes in a roll, is wrapped around a dressing, to hold it in place, and tape is applied over it. Gauze protects the wound while its open weave permits air to circulate around it.

Gauze pads, sterile, 4"

For larger wounds, a gauze pad is used as a wound dressing and held in place by a bandage instead of an all-in-one adhesive bandage. Gauze pads come in a variety of sizes, but a 4" pad will cover most wounds.

Ice pack

An ice pack reduces bleeding or swelling. Old-fashioned ice packs that could be filled with ice and capped have generally been replaced by reusable, pliable ice packs that are stored in the freezer until needed or one-time use ice packs that are "activated" when you twist them. You can also make an ice pack by wetting a wash cloth in rubbing alcohol (because alcohol does not freeze, the cloth won't stiffen), placing it in a resealable plastic bag, and keeping it in the freezer. A bag of frozen vegetables works perfectly as a makeshift ice pack. You should have more than one, because generally you should apply the ice pack for several minutes, leave it off for several minutes, and then reapply; while one bag is re-icing, you can use the other.

Latex gloves, disposable

For tending to a bloody wound, it is a good idea to wear latex gloves.

Ointment, antibiotic

Bacitracin and other multiple ointments can treat minor cuts.

Ointment, burn

Hold a minor burn under cold running water or immerse in cold water for at least 10 minutes. Remove any tight jewelry and loosen any tight clothing before swelling sets in. Use a sterile gauze dressing bigger than the wound. An anesthetic medication (brands end in "-caine") should reduce the pain. But if you suspect that a burn is serious, do not apply a burn ointment. Get the burn treated by a physician immediately.

Ointment, sunburn

An anesthetic medication (some brands end in "-caine") or aloe should be adequate for treating a sunburn.

Pain relievers, generic

Aspirin, ibuprofen (such as Advil®), and acetaminophen (such as Tylenol®) are all pain relievers and fever reducers, but because of the link to Reye's syndrome, aspirin is not advised for children under 18. There are pain relievers formulated for children, but once your child is 12 years old or weighs at least 90 pounds, he or she should be able to use any of the adult medications; check the product label for more information.

Soap, fragrance-free

In a portable first-aid kit, include fragrance-free soap to clean hands and wounds.

Syrup of ipecac

To induce vomiting if certain poisons are ingested, have syrup of ipecac on hand. If kerosene, gasoline, or another petroleum product has been ingested, vomiting is dangerous, so never take or administer this product without the advice of a physician. In case of suspected poisoning, call your nearest Poison Control Center or hospital emergency unit to ask for directions. Check the expiration date of the syrup of ipecac before using it.

Tape

Tape holds gauze bandages in place. It comes on a roll, in different widths (generally ½" and 1"), and in both clear and cloth versions. The cloth version provides more stretch, whereas the clear version is more moisture-repellent. For all-purpose use, buy a roll of 1" cloth tape.

Thermometers

Oral thermometers are used for adults, who can hold the thermometer under their tongue; rectal thermometers are used for infants. Digital thermometers, which work on a battery, are easier to read than mercury thermometers. If family members will share a thermometer, buy probe covers, which are sanitary shields. Digital thermometers that read temperature in the ear are very accurate and take readings rapidly, but they are expensive.

Blood pressure test

A blood pressure test checks the condition of your heart and arteries. A rubber cuff is placed around the upper arm, inflated until it stops the flow of blood through the artery, and then slowly deflated until the flow resumes, when the systolic pressure is measured. (The doctor uses a stethoscope to listen for this sound, placing the measuring portion on the crook of your arm below the cuff.) Then, the cuff is further deflated until the blood is flowing steadily through the open artery as the heart is relaxed, and a second, diastolic measurement can be taken. The doctor is looking for high readings, particularly in the systolic, lower number, which should be below 90 or, ideally, below 80. For home use, you can buy different types of blood pressure measuring instruments; the easiest and most accurate ones are electronic.

Breast self-examination

Because breast cancer may affect 1 in 9 women, because 90% of breast lumps are first discovered by the patient (rather than a doctor), and because some sources estimate that regular self-examination may reduce breast cancer deaths by 25%, breast self-examination is a good practice for women to follow. (You should also augment it with regular doctor visits and, as prescribed, mammograms.) A breast self-examination consists of three parts: exam in the bath or shower, observation in the mirror, and breast exam lying down. Your gynecologist, your local American Cancer Society office, or the American Cancer Society headquarters (19 West 56th Street, New York, NY 10019) can provide a booklet on self-examination. (In Canada, write to the Canadian Cancer Society at 10 Alcorn Ave., Suite 200, Toronto, Ontario, M4V-3B1.)

CBC (complete blood count)

A CBC is the most frequently performed lab test. It is used to check for anemia and infection and screens for a variety of problems. It is not one test but rather a group of seven or more tests that reveal a great deal of information about all of the blood cells--red, white, and platelets.

Cervical smear, Pap smear

A cervical smear is a screening test (not a diagnosis of cervical cancer) that determines the presence of cancerous or precancerous cells in the cervix. Results have formerly been reported in one of five categories: Classes I and II mean no malignancy, Class III is a maybe and the smear should be repeated, and Classes IV and V require attention. Newer classifications divide smears into three main categories: benign (noncancerous), precancerous (showing abnormal cell changes), and malignant (possibly cancerous).

The American Cancer Society suggests that women ages 20-40 who are not at high risk and who have had two previous normal Pap smears need another only every 3 years. Women over 40, women at high risk, and those with a recent positive Pap smear should have one more frequently--annually or as the doctor advises. The American College of Obstetrics and Gynecology recommends a yearly Pap smear for all women at the onset of menstruation.

Cholesterol test

A cholesterol test is a blood test that measures the amount of cholesterol in the blood--a major risk factor of heart disease.

Lipoproteins are also measured, both high density (HDLs) and low density (LDLs). High levels of the former and low levels of the latter are also helpful in preventing heart disease. If your reading is normal, checking once or twice every 10 years is probably enough, but if it's questionable, your doctor may monitor it more often.

Total cholesterol of less than 150 puts you at low risk for heart disease but may put you at a slightly increased risk for colon cancer and stroke. Under 200 is generally considered desirable.

Over 230 puts you at an average risk for heart disease, and a reading of 260 is now considered the outer limits of normal.

Men's HDL levels generally range from 65 (low risk) to 25 (high); over 55 is best. Women's levels usually range from 75 to 40; over 65 is best.

DTP immunization

DTP is an immunization given to children to prevent diphtheria; tetanus, sometimes called lockjaw; and pertussis, sometimes called whooping cough. This is probably the first shot a baby receives, and the immunization should be repeated at specific intervals until the child enters school. Your child's doctor can give you the immunization schedule and further details on the benefits and risks of DTP. A DT vaccine is available for children who may suffer from adverse effects if given the pertussis vaccine. You and your doctor will be able to determine whether or not this is the case, based on severe reactions to DTP, a history of seizures or convulsions, and other factors. Also, since 1991, DPAT (acellular pertussin), which has fewer side effects, has been available instead of DTP for the last two immunizations in the DTP series.

Ear, nose, and throat examination

The doctor uses a small funneled tool to see the eardrum and may use a pneumatic otoscope, which delivers a small puff of air that strikes the eardrum, to observe whether or not it moves as it should. To determine eardrum movement, the doctor may also use a vibrating instrument behind the ear and place a plug (a tympanometer) in the ear. The doctor will observe the nose with a small, hand-held speculum, a tool that gently opens the nostril, and may simply hold back the tongue with a tongue depressor to observe the throat.

Eye examination

Those who wear glasses or contact lenses should routinely make sure that their prescription is appropriate, but even those who do not should be screened for glaucoma, a generally symptomless eye disease that can result in blindness. A general eye examination usually includes six or more procedures. The visual acuity examination is the eye chart test; if you have any problem with it, you will take the refraction test (where you try out various lenses) to determine your lens prescription. You may be asked to take a color defectiveness test (usually, just making out patterns in colored dots) to see whether or not you are "color blind." The doctor will probably ask you to look up, down, and to the sides (to check the eye muscles) and check the pupillary reflex (when your pupil contracts due to bright light) response with a flashlight. During a slit-lamp examination, the doctor will look through your eyes with a high-power microscope. The glaucoma test measures the pressure within your eyeball. Patients 40 and over will be checked for cataracts. Those 60 and over will be checked for macular degeneration, an eye disease that attacks the central retina.

Hearing test

Hearing tests are used with children to screen for hearing problems that might interfere with learning how to talk. The subject must listen to a series of tones of different pitches and intensity.

Hepatitis B immunization

Hepatitis B is contracted through exposure to infected blood and other body fluids. The hepatitis B vaccine, or HBV, can prevent serious liver disease caused by hepatitis B and even the cancer that may result from such disease. It is now recommended by the U.S. Public Health Service as a beneficial vaccine for children to prevent the risk of hepatitis in the future, and children exposed to hepatitis in the home or who have infected mothers should definitely be vaccinated. Ideally, the vaccine should be given at birth, followed by two more vaccinations by 18 months; however, children can receive vaccinations at any age. Adult immunizations have proven unsuccessful.

Hib immunizations

Hemophilus influenzae b can cause serious infections in children, including the often fatal meningitis and potentially fatal epiglottitis. Current Hib vaccines have few side effects and are given in four doses by 15 months of age. Your doctor can detail the side effects and risks of Hib immunizations.

Mammogram

A mammogram is an X-ray to determine breast cancer. The American Cancer Society recommends a baseline (for purposes of comparison) mammogram for women between ages 35 and 39, a repeat every 1 or 2 years for ages 40-49, and then yearly for ages 50 and over. The National Cancer Institute says that women should have an annual mammogram if they are at high risk, that is, women over 35 with cancer already in one breast, women over 40 with a history of premenstrual cancer in the immediate family, and all women over 50. The American College of Radiology recommends mammograms every 1-2 years for women over 40, and the American College of Obstetrics and Gynecology recommends them annually or, if a lesion is found or you are at high risk, more frequently. Check with your doctor to determine whether or not you are at high risk. One breast at a time is examined. It is placed on a flat surface containing the X-ray. A compressing device flattens out the tissue, and then the X-ray (or two, one from the top and one from the bottom) is taken. The procedure is then repeated for the other breast.

MMR immunization

The MMR vaccine is to protect children from measles, mumps, and rubella. The immunization should be given around age 15 months and again around age 12 years. Your doctor can detail potential side effects.

Occult fecal blood test

The presence of blood in the stool, as well as persistent weight loss, diarrhea, or any change in bowel habits, should be reported to your doctor, but the blood may be so slight as to go undetected. The occult fecal blood test is performed in the hope of earlier detection, but there is some dispute about its diagnostic usefulness. Your doctor can help you decide whether or not this is of value for you; the test is generally recommended for men and women over 50. You can use an at-home kit and determine the results yourself, or the doctor may give you a kit to collect a sample and send it to a laboratory. The doctor may do a digital rectal examination both to detect polyps and to collect a sample of fluid that can be put on a slide as an occult blood test.

OPV immunization

The oral polio vaccine, or OPV, has virtually wiped out polio in North America, with fewer than a dozen cases reported every year. Children usually will receive four oral doses of the vaccine before they start school. An injectable, inactivated version of the vaccine, IPV, is available for children who live with or are in contact with people who may be at risk due to various factors. Your doctor can give you further information on the risks and possible side effects of OPV.

Reflex examination

To test reflexes, the doctor uses a rubber hammer at certain check points such as the knees, elbows, and ankles to make sure that your reflexes work properly in both limbs and that they match. The reflex examination can determine neurological disorders.

Sigmoidoscopy

Sigmoidoscopy is a visual examination of the inside lining of the lower colon, rectum, and anus for tumors, polyps, and other bowel diseases such as Chron's disease or ulcerative colitis. The development of a flexible fiber optic sigmoidoscope, about 2 feet long with a light source at the tip, makes this exam much more effective and less uncomfortable. You may have to prepare the bowel by fasting or eating a special diet for a couple of days. The exam itself may take only 5-10 minutes. If you are at especially high risk for colon cancer (your family has a history of polyps or cancer or you have ulcerative colitis), your doctor may recommend a periodic colonoscopy, which permits a visual examination of the upper as well as the lower colon, instead of a sigmoidoscopy.

Td immunization

Made especially for children ages 7 and older and for adults, Td is a vaccine that prevents tetanus and diphtheria. A booster shot is recommended every 10 years, but if you have a serious or infected wound and have not had a booster in the last 5 years, then you should get one.

Teeth and gums exam

The most common chronic disease is dental disease--tooth decay or gum disease. Dental plaque, a bacterial-containing substance that accumulates around and in-between teeth, is the major cause of both. Daily brushing and flossing will remove plaque, but to check whether or not you're doing a proper job, you can use one of two easy methods. Discoloring tablets contain a dye that leaves a red stain on areas where there are food remains and plaque. Or you can use a plaque light in combination with a fluorescent solution swished around the mouth; the solution makes remaining food glow a bright orange-yellow. In either case, where you see the red stains or glow you should floss and brush again.

Testicular self-examination

Symptoms for testicular cancer are rare. It occurs primarily in men under 35 and is rare in men over 50. Testicular self-examination is best performed when the body is warm (after a bath or shower). Raise one leg onto a chair, and gently feel the scrotal sac on that side of your body until you locate the testicle. Roll it gently between the thumb and fingers of both hands. The surface should feel firm, but not hard, without any lumps. Repeat the procedure on other side. If any lumps are detected, or if the testicle is enlarged, consult a doctor right away.

Tuberculin skin test

A screening test for tuberculosis helps to determine whether or not you have ever been infected by the tuberculosis bacteria. A positive test may mean either an active case or a previous infection. If the case may be active, you will need further testing: a chest X-ray and probably a sputum sample.

Urinalysis, or UA or urine test

A urinalysis is not a single test but a group of tests that screens for a variety of diseases such as diabetes, kidney stones, urinary tract infections, liver disease, gallbladder disease, hypertension, and hormone problems. Some involve the use of a dipstick (chemically treated paper strips that may change color and intensity when dipped into the urine if certain substances are present). People with high blood pressure, diabetes, gout, or recurrent urinary tract infections will be closely monitored.

Air conditioning, central

The condensing unit is the part of the air conditioning that sticks up above the ground outside. It is important to check the condensing unit occasionally because if yard debris covers or blocks it, the system will not work properly. When you check the unit, be sure to remove all debris from the condensing unit itself. Then check the condensate drain. The condensate drain is the long pipe that comes out of the top of the central air conditioning unit in your basement. Its function is to carry off condensed water. Simply make sure that this drain is not plugged. Finally, change the furnace filter. If you do not know where the filter is or how to clean it, ask the serviceperson to show you its location during the annual tune-up.

Air conditioning, room units

During summer the filter and the condenser coils should be cleaned once a month. To clean the filter, remove it from the air conditioning unit and vacuum off any debris. To clean the condensor coils, remove the back cover of the unit and vacuum the coils.

Basement

Inspect the basement for leaks from the outside. If you see any leaks, the area will have to be professionally excavated and sealed. Following a snowfall, remove snow from the window wells.

Chimney

Visually inspect the chimney from the outside to see whether any bricks need repointing. While there's a fire burning, feel the wall from the outside for hot spots. If you feel hot spots then there is probably a flue problem, in which case you must call a serviceperson.

Open the damper lid that seals off the chimney (at the top of the fireplace opening) and see whether your view is clear or whether the flue is blocked off. Also, the damper lid should seal tightly. If you can feel a breeze from the chimney even when the damper is sealed, then the damper lid is not closing correctly. This problem can lead to higher power bills because you will constantly be losing the heat from your house.

All bricks inside the rear and side walls of the fireplace should be intact, and the ashes in the pit should be dry. If they are soggy, the pit may need resealing. You will need a serviceperson to check for corrosion in the interior and also to remove bird nests.

Deck

Wash the deck thoroughly with a commercial product. Ask your hardware dealer to recommend the best product for your specific deck. Every two or three years, coat your deck with a sealer or stain.

Dryer, automatic clothes

To ensure maximum dryer efficiency, check the door seal for leaks: close the door, turn on the dryer, and run a tissue around the door. If the tissue is sucked in, the seal needs replacing. To check the vent duct, run a tissue along the length; similarly, if the tissue is held at any point, you have a leak. Flexible ducts can be easily replaced with a kit from the store. Intake and exhaust ducts are perforated areas at the rear of the dryer--make sure they are not blocked.

Fire extinguishers

Read and follow maintenance advice in the owner's manual that comes with all UL-listed extinguishers, and check monthly to see whether the extinguisher is charged. Most have a pressure gauge and/or a dial face that clearly indicates an acceptable range of charge (the needle or indicator is in the green zone if acceptable, in the red zone if not). A disposable fire extinguisher can be used only once and must then be discarded and replaced. A rechargeable model, even if used for only one second, must be serviced afterwards.

For more about fire extinguishers, see "Home Safety and Security" under "Health and Safety."

Floors, vinyl or other resilient floors

Solvent-based floor waxes are always used on wooden (unsealed) floors. They can also be used on marble, quarry tile, terrazzo, and brick. But if you use a water-based wax you will find that it eventually builds up, making the floor look dull and yellow. Buy a liquid wax stripper/cleaner (there are many brands on the market) or mix ½ cup of Spic and Span®, two cups of ammonia, and one gallon of clear water. Sponge the solution on or apply it with a floor scrubber/polisher. Then rinse the solution off, and wax the floor. Using a sealer before the floor is rewaxed is extra work but it provides additional protection.

Foundation

Make a visual inspection of the foundation. If weep holes (which allow excess water to escape to keep pressure off the walls) are blocked, remove any yard debris. If the foundation is eroding where the wall meets the earth, call a serviceperson. Mortar joints may crumble as a result of freezing and thawing, in which case they should be repointed. Rotting wood must be replaced with specially treated lumber.

Hairline cracks should be sealed because they are entry points for termites and could encourage leaks; small ones can be fixed with caulking compound and larger ones with cement mortar. Cracks or large spaces between the sill and the top of the foundation wall will need caulking compound or insulating strips to prevent cold air and moisture from coming in.

Check for physical evidence of termites (e.g., piles of discarded wings or mud tunnels along foundation walls, along posts set into the ground, and along water pipes), and call a serviceperson if necessary.

Gutters and downspouts

Clean gutters and downspouts if ice and debris have clogged them. Call a serviceperson to repair seams that have separated or sections that have loosened from the building, or to adjust downspouts that are not guiding water away from the building.

Heating system, forced-air

With a forced-air heating system, the blower is at the bottom of the furnace. Follow the manufacturer's instructions for lubricating the blower or ask a serviceperson to help you locate the ports (small holes) that need lubrication on the motor and fan, as well as the grease cup, which needs annual filling. Find the belt and check for fraying or cracking. Sometimes the belt tension may also need adjusting. Again, ask a serviceperson or follow the manufacturer's instructions to do this.

Heating system, gas furnace

For a gas furnace heating system, a serviceperson should do an annual check for flue leaks, relight the pilot if necessary, replace the filters, and service the blowers. The burner may also need cleaning.

Heating system, oil furnace

With an oil furnace heating system, have a serviceperson check the firing system, clean the ignition electrodes, clean or replace the nozzle, clean or change the oil filter and pump strainer, check the flue connections, and do an annual tune-up. Ask the serviceperson to check combustion efficiency, drafts, and smoke density.

The fan blades are the vanes in the burner blower that create an air stream that (together with the oil) causes combustion. Cleaning the blades increases the efficiency of this process. Use a long-handled brush to reach in and dust them off. If you cannot find the blower, ask the serviceperson to point it out during the annual tune-up. Instructions for lubricating the burner motor should be found on the housing.

Heating system, steam boiler

With a steam boiler heating system, the glass gauge (which sticks out of the side of the boiler) should be checked to see that water is in the boiler. The water level on the gauge should be at the halfway mark. If the level is low, you may need to add water by opening a fill valve on the inlet pipe. If the level is constantly low, even though you fill the boiler regularly, then the boiler probably has a leak.

The moving needle on the pressure gauge, which is found at the top of the boiler, indicates the actual pressure inside the boiler. The needle should be at the same level as the fixed pointer on the thermostat-type unit (the regulator) beside it. If it is higher, turn the boiler off and call a serviceperson. Locate the relief valve, also on the top of the boiler, and just lift the lever to make sure it moves freely.

To flush rust, find the blow-off valve, which is probably adjacent to the gauge glass and has a pipe extending down from it, and hook a bucket below it. To carry out the built-up rust, open the valve and run the water until the water runs clear.

{ewl uwmf, MVWMF11, home.wmf}

1. *water supply*
2. *pressure release safety valve*
3. *pressure safety control*
4. *pressure gauge*
5. *water level gauge*
6. *boiler section*
7. *drain*
8. *supply to main system*
9. *return*
10. *shut off*
11. *burner section*

Humidifier

Clean out mineral deposits and dirt in a freestanding humidifier unit by cleaning the reservoir pan as described in the manufacturer's instructions. You will also have to follow manufacturer's instructions for removing and inspecting the hose (which may be clogged or cracked) and the pad, the part that stays wet and moves like a belt and could get clogged. In a furnace unit, you may need to replace the filter.

Outdoor faucets

To prepare outdoor faucets for winter, close the shut-off valve on outdoor faucets and then let the water drain out. If pipes cannot be drained, wrap them with electrical heating cable from the hardware store. This will help protect the pipes from damage due to freezing.

Outdoor metal items

Clean off grass and dirt from outdoor metal items and then wipe them down. Rust can be removed with products such as Zud® or Whink®. To protect metal items from rust, coat items lightly with engine oil. Do not store items under plastic, which traps moisture and can lead to rusting; instead, use paper grocery bags or newspapers.

Patio doors, sliding

Remove debris from the sliding patio doors and door tracks by wiping with a cloth dipped in detergent and water; rinse. Lubricate the tracks with graphite.

Radiators

Using a screwdriver or special key, slightly unscrew the air vent on the side of the radiator, toward the top, and let water drain into a pan; when the water flows smoothly, close the valve. This procedure releases trapped air and permits hot liquids and gases to flow through the unit.

Dust your radiators regularly so that dust doesn't hinder the passage of heat through the coils. A dust-free radiator is much more energy efficient than a dusty one.

Refrigerator

Accumulated dust and dirt can hinder the air circulation in your refrigerator. To keep the refrigerator running more efficiently clean dust and dirt from under the refrigerator and from the coils.

Septic tank

Every two to three years, have a serviceperson clean the septic tank.

Sewer house trap plug

Make sure the sewer house trap plug is in place and tightly closed. It is probably located under a wooden or metal cover in the basement right next to where the sewer pipe goes through the building wall.

Shingles, wood

Clean wood shingles with a push broom or pressure washer. Every three to five years, coat shingles with a sealer.

Siding, aluminum

Wash aluminum siding with a solution of one cup of all-purpose detergent to one gallon of water. Apply the solution with a power sprayer, and then rinse. If there is mildew, use a mildew remover or solution of $\frac{3}{4}$ cup of bleach and one gallon of water. Wet the surface (but not in direct sunlight, because the solution will evaporate too quickly), and rinse thoroughly or else corrosion may occur. Some solutions may also be used on a tile roof, brick, or stucco.

Siding, wood

Paint wood siding if shabby, blistering, or peeling. Nail down loose boards, and check for wood decay. If a full exterior painting is needed or if wood rot needs attention, call a serviceperson.

Smoke alarm

To be on the safe side, test the batteries in the smoke alarm at least once a month, and change them once a year.

Storm windows and doors

Rub storm windows and doors with fine steel wool to remove corrosion, spray the tracks with silicone lubricant, and use weather-stripping if necessary.

Stove exhaust fan and fan filter

Clean the stove exhaust fan monthly and change the filter every six months, or when the filter becomes dirty. See the stove manufacturer's instructions for further advice.

Stucco

Repair hairline cracks with a product that your hardware dealer recommends, and then cover the cracks with house paint if desired. For large cracks, you may want to call a serviceperson. To remove mildew, use a mildew remover or a solution of $\frac{3}{4}$ cup of bleach to one gallon of water. Wet the surface, and rinse thoroughly or else corrosion may occur. Some solutions may also be used on brick, aluminum siding, or a tile roof.

Trees

Trim branches that might fall on or near the house in a storm. The power company will remove, for free, dead branches that are along power lines. Also, keep trees and bushes trimmed at least one foot away from your house to reduce the risk of insects invading your home.

Washing machine

The drain hose of your washing machine usually connects with a spring-clip to the bottom rear of the machine. If you release the clips, you will see a filter inside. Check with your manufacturer to find out where to get a replacement part if necessary.

Well

If you get your water from a well, have the water quality checked annually by your local health department. There is most likely a charge for the quality check, but it will be less expensive if you collect the sample yourself. Call the local health department for information on how to properly collect the sample. If your water ever smells or tastes unusual, or if the water color changes, check with the health department immediately.

Baking soda

Baking soda is a very gentle abrasive that can be used on surfaces that other scouring cleaners might scratch.

Bleach

There are two kinds of bleach: chlorine bleach and oxygen, or all-fabric, bleach. Chlorine bleach is a powerful whitener and brightener but will cause noncolorfast colors to bleed and fade. Oxygen bleach is less powerful, but is safe for color clothing.

Before putting any color clothing in chlorine bleach--even clothing marked "chlorine bleachable" or "colorfast"--you should test for colorfastness. This involves mixing 1 tablespoon of chlorine bleach with half a cup of water and putting a drop of the mixture on a hidden seam of the clothing item to test. After 1 or 2 minutes, blot it dry. If the color has changed, do not use chlorine bleach on that fabric.

Bleach should never be used on silk, wool, spandex, polyurethane, foam, or rubber. In addition, bleach may fade nylon, polyester, and acrylic and may cause holes in cotton, linen, and rayon. Do not pour undiluted bleach on clothes. Instead, add it 4-6 minutes before the end of the wash cycle. Never mix bleach with ammonia, toilet-bowl cleaner, or rust remover because toxic fumes will result. Read all cleaning product labels to make sure you are not inadvertently mixing these solutions. Bleach will remove mildew, but it is not really a cleaning agent and can damage many materials including chrome, laminates, and plastics. There is no point in leaving anything to soak for long periods of time in bleach, because its action takes place soon after it is added to the wash water. Extended soaking will simply damage the fabric.

Brighteners

Located in the dyes section of a fabric store or notion department, brighteners may restore whiteness to faded white nylon and other white items.

Color removers

Located in the dyes section of a fabric store or notions department, color removers are used when colors have "run" or "bled" onto white fabrics.

Cotton material, absorbent white; or white paper towels

Blot up as much of the spill as you can right away so that you have less of a problem later. Frequently, cold water alone can remove a fresh stain. Do not use hot water, which may set the stain. If you are removing a set-in stain, put the cotton or towels underneath to absorb surface liquid and, if you are using a solvent, additional cotton or toweling to apply it. Afterwards rinse and then wash items that can be laundered; others should be left to air-dry.

Dishwashing detergent, liquid

Liquid dishwashing detergent--not the kind used for an automatic dishwasher--is frequently used in small concentrations (about 1 tablespoon to a quart of water) for fabric or carpet stain removal.

Dry-cleaning fluid or spot lifter

Dry-cleaning fluid is especially effective in the removal of greasy stains and is the only solution for nonwashable fabrics. On dry-clean-only fabrics, a water-based spot remover can cause dye to run or leave a ring. Be sure to follow the label cautions, because solvents are toxic by inhalation, ingestion, and skin absorption.

Enzyme presoak products

Enzyme presoak products, such as Biz® or Axion®, boost detergent cleaning power and remove protein stains (e.g., food, drink, body fluids, grass) by "digesting" them, much like the enzymes in your body digest food. For greasy and oily stains, see "Prewash Soil and Stain Remover."

Heavy-duty detergent

Unlike soap, detergents contain synthetics and are formulated so that they will suds up in any kind of water. Some detergents also contain chlorine bleach, or fabric softener, but these combination products are less effective than adding bleach or softener individually.

Household ammonia

*Ammonia is a weak acid effective for cleaning and deodorizing. CAUTION:
Ammonia should not be used on aluminum.*

Hydrogen peroxide

Although set-in blood is very difficult to remove, hydrogen peroxide (3% solution, sold as an antiseptic) can be helpful in removing a fresh stain.

Lemon juice

Although lemon juice will bleach fabrics (and therefore should not be used on nonwhite materials), it is a natural acid and is therefore an excellent stain remover for many jobs around the house.

Lime- or mineral-deposit remover, commercial

For soap scum and mineral buildup from hard water, you may need a commercial lime- or mineral-deposit remover product.

Nail-polish remover

For stain removal, you need a nail-polish remover that contains acetate.

Paint thinner or turpentine

To remove paint stains, try paint thinner or turpentine.

Paper towels

Whenever working with stains on fabric or carpeting, do any blotting with white toweling or unprinted white paper towels; otherwise, you may transfer the color of the paper dye to the stained area.

Plastic applicator bottle

To apply heavy-duty liquid detergent directly to a stain, pour some detergent into a small bottle such as a plastic mustard dispenser or a clean liquid soap dispenser, and use this bottle to more easily dispense the detergent.

Prewash soil and stain remover

Prewash soil and stain removers come in stick form, which you can apply to a fresh stain and then launder up to a week later. They also come in a liquid or spray form, which you apply right before you toss the item into the wash. These removers are good for greasy and oily stains. For protein stains, see "Enzyme presoak products."

Pumice stone

If brown stains on the toilet remain, a wet pumice stone can remove them.

Rust remover, commercial

Rust removers work on hard surfaces and also on fabrics, but be aware that most of them remove color. Never use rust remover with bleach.

Steel wool

Steel wool pads without soap are abrasive. Used without liquid, they may scratch some surfaces.

Toilet-bowl cleaner

While ordinary cleanser will remove some toilet stains, for very stubborn ones you may need a toilet-bowl cleaner designed for this purpose. These cleaners are strong and very toxic. One alternative is to try cleaning the stain with a wet pumice stone.

Toothpaste, nongel

Like baking soda, nongel toothpaste is a very gentle abrasive.

Vinegar, distilled white

Ordinary household vinegar is a mild acid and an effective but gentle cleaner. It may remove color.

Wood alcohol

Also known as methanol, wood spirits, and methyl alcohol, wood alcohol is a solvent made from the distillation of wood and is used, among other things, as a solvent for dyes. It is flammable, toxic, and has bad-smelling fumes, so use it in a well-ventilated area, wear gloves, and observe fire safety precautions.

Anchors

An anchor is a sheathe made of plastic or nylon that holds a screw into a plaster or masonry wall. A hole is drilled, the anchor is slipped inside, and then the screw is pushed into the anchor and turned into place. As the screw is tightened, the anchor is wedged firmly into the wall. A hollow-wall anchor is used to hold lighter loads onto plasterboard. If you live in an older building, you may be discouraged from drilling into plaster. Instead, there may be a picture hanging molding, which is a narrow strip of wood from which you can secure hooks.

Bolts

A bolt is a heavy-duty fastener with a round top and a threaded bottom. It passes through one side of an item and is secured on the other side by a six-sided, doughnut-shaped nut, which is tightened with a wrench. A toggle bolt is used to hang heavy fixtures on hollow walls: a hole is drilled, the toggle bolt is pushed through, and the wing-like toggles at its end snap open to hold the bolt in place.

Chisels

Wood chisels are used in woodworking for cutting and smoothing wood joints, whereas cold chisels cut rusted bolts and other metals and stones. A 6-8-inch butt chisel will remove a large amount of wood, and a thin-bladed paring chisel is used for fine work, but if you are not a woodworker and simply want an all-purpose chisel, get a pocket chisel 9½-10½ inches long. A flat chisel, with a wedged end, can be used to ease out bolts that are stuck in place; shove it into place and hit the end with a hammer.

Combination square

A combination square is a measuring tool that has a sliding portion with a right-angled measure to guide you in making square joints and a 45-degree side to help you make mitred joints (as in a picture frame). A combination square may also have a built-in level.

Drill

For hanging lightweight items, a nail is fine, but a properly installed screw fits into the wall more securely and is a must when you hang heavy objects. With an electric drill, you will do a better, faster, neater, and safer job than with a manual drill. Drills come in 1/4-inch, 3/8-inch, and 1/2-inch sizes, depending on the largest bit (or tip) the drill can hold. The 1/2-inch drill is the strongest, but a 3/8-inch variable-speed drill is most versatile and practical for home use because you need to use a high speed for drilling wood and a lower speed for metal. Cordless drills are convenient, but those with cords are generally more powerful.

Drill bits

Different sizes and types of bits are used to drill different-sized holes and to work on various materials. You can buy a basic drill bit set that will drill holes from 1/32 inch to about 1/4 inch in diameter and will serve for small drilling jobs on both metal and wood. You may also need a masonry bit for drilling into plaster or mortar. In addition to the drilling and screwdriving bits, an electric drill can be fit with other accessories that can buff, sand, stir paint, remove paint, and remove rust.

Duct tape

Wide, silvery gray duct tape, which is made of paste-coated cloth, is remarkably strong. Its name comes from its effectiveness for sealing joints in heating, cooling, and clothes dryer ducts. It is also useful for repairing plastic, metal, and many fabric items. Do not use duct tape for electrical repairs.

Extension cord

If an extension cord is too thin, it can overheat and start a fire. When buying an extension cord, check with your hardware dealer that the cord is thick enough for the appliance you plan to use it with. Never use a cord thinner than the one on the appliance that it will be connected to because the extension cord will likely overheat. Extension cords are marked with their electrical capacities in amperes and watts. To avoid shorts, never use an extension cord that is cut, damaged, repaired, hot, or even just warm. Extension cords should be used only on a temporary basis, if at all.

Files, rasps, and planes

Files are used to smooth a metal or plastic surface. A flat file can sharpen a screwdriver or grass trimmer. Rasps are used to cut wood surfaces coarsely. A smoothing plane smooths all wood surfaces except the end-grain, for which you need a block plane.

{ewl uwmf, MVWWMF11, home.wmf}

- 1. flat file*
- 2. rasp*

{ewl uwmf, MVWWMF11, home.wmf}

- 1. block plane*
- 2. jack plane*

Glues

White glue is used for paper and other porous surfaces. Carpenter's glue is for wood. It dries in 24 hours and requires clamping. Superglue liquid is for nonporous surfaces (such as glass) and gel is for porous surfaces (such as china). It dries in 24 hours and does not need clamping. Household cement is similar to superglue but dries slower, needs clamping, and is not as strong. Two-tube epoxy (one tube contains resin and the other has hardener) dries in 30 minutes to 3 days, depending on the formula, and may require brief clamping.

Hammer, claw

A 13-ounce, flat-face hammer with a wide striking surface and an unbreakable steel or fiberglass handle is easy to swing, accurate, and suitable for light work such as driving nails for picture hanging. The claw is used to pull out nails that are driven in at the wrong angle or in the wrong place. A 16- or 20-ounce hammer is appropriate for experienced carpenters doing heavier jobs. Buy one with a shock-resistant graphite handle or a cushioned rubber grip. A longer handle gives better balance.

Specialty hammers include tack hammers, with magnetic heads that hold tacks in place when you drive them; rubber mallets, which are used to assemble wood joints or to loosen stuck windows; and baby sledgehammers, which can be used in combination with a chisel to work loose a stubborn bolt.

Level

A level is a measuring tool that determines a straight horizontal line. It is useful when putting up shelves, hanging paintings, and so forth.

Lubricants

Penetrating oil loosens rusted screws, sewing-machine oil lubricates hinges and other close-fitting metal parts, and silicone spray can loosen stuck drawers or windows. WD-40® can do the work of both the sewing-machine oil and the silicone spray.

Nails

Most nails are made of steel or aluminum, but smooth-shanked, galvanized (zinc-coated) nails are best for outdoor use or wherever there is moisture. Nails are measured by a number followed by the letter d; the larger the number, the longer, thicker, and heavier the nail. Here is a summary of the more common kinds of nails:

- * Box nails have smaller diameters and are used where boards might split.
- * Casing and finishing nails have small heads and are used in cabinetry and other fine work where the nail head must be concealed (finishing nails leave a smaller hole).
- * Brads are tiny finishing nails.
- * Common nails.

Here is a summary of the more specialized nails:

- * Paneling nails are finishing nails with threads so they hold better.
- * Drywall nails have threads and sharp points and are heat-sterilized to be rust-resistant.
- * Masonry nails are for nailing into brick and concrete.
- * Masonry nails are for nailing into brick and concrete.

- {ewl uwmf, MVWMF11, home.wmf} 1. common nail
2. finishing nail
3. brad
4. paneling nail
5. drywall nail
6. roofing nail
7. masonry nail

Pliers

Pliers come in a range of different lengths, and specialty pliers, such as long-nosed pliers, are used for particular purposes. The following three types are good for a basic tool kit:

** A 10-inch multiple-joint plier should have several jaw-span adjustments (up to 2¼ inches) to loosen nuts and bolts.*

** A 6-inch slip-joint plier, a pincer-like tool, can be used to loosen bolts, to pull out staples, and occasionally to act as a vise for a small object (put the item between the tips of the pliers, then secure the grip with a rubberband).*

** An 8-inch locking-grip plier can serve as a vise, clamp, or adjustable wrench.*

Plunger

A toilet plunger differs from a sink plunger in that it has an extra flange, or lip, which gives it a better seal for use in clogged toilets.

{ewl uwmf, MVWMF11, home.wmf}

- 1. sink plunger*
- 2. toilet plunger*

Putty knife

A putty knife is shaped like a kitchen spatula and is used to trim peeling paint from furniture or windows and to patch small cracks in walls or ceilings.

Sander

A block of wood with a piece of sandpaper around it will suffice as a sanding tool. Or use half of a rubber ball on top of the sandpaper to push it along. Another option is to buy a sanding bit for your electric drill, or if you have a big sanding job to do (such as refinishing furniture) you may want to rent a power sander.

Saws

A handsaw or crosscut saw is an all-purpose tool. Although a 26-inch blade is standard, a 22-inch blade is easier to handle. A 10-point blade (the measure of teeth per inch) will give you a smoother surface than the more common 8-point blade.

To cut curves, you need a variable-speed, electric saber saw or a non-electric coping saw. With different blades, it can work on wood, metal, or plastic.

A keyhole saw makes a circular or straight cut to open floors, walls, or ceilings so that pipes and the like can go through. A hacksaw cuts pipes and solid metal.

A circular saw is an electric saw with a circular blade, with enough capacity (usually 7¼ inch) to make a 45-degree cut in 2-inch-thick material. It is used on long boards, paneling, and other jobs requiring real power.

{ewl uwmf, MVWMF11, home.wmf}

1. *coping saw*
2. *circular saw*
3. *key hole saw*
4. *crosscut saw*
5. *scrolling saber saw*

Screwdrivers

Flat head (or slotted) screwdrivers come in a variety of sizes to fit different-sized screw slots. If the tip of the screwdriver you're using is too narrow, it will slip and damage the screw, and if it is too wide, it will scar the area around it.

Phillips screwdrivers fit cross-slot screws that have a small "star" in the head. (Because a single-slotted screwdriver is more likely to slip and mar the adjacent area, Phillips-type screws are often used on appliances and furniture assembly.)

With a *ratchet-handle screwdriver*, pressure from your hand creates a corkscrewing action that helps drive the screw into place. You can also buy a cordless electric screwdriver, but an electric drill with a screwdriver bit is more versatile.

For general use, get the following screwdrivers:

- * Phillips screwdriver with a 6-inch blade
- * No. 3 tip and another with a 3-inch blade and a No. 1 tip
- * flat-topped screwdriver with a 6-inch blade and a 5/16-inch tip and another with a 3-inch blade and a 3/16-inch tip.

Screws

Screws have better holding power than nails and are used when an item must eventually be disassembled. They are used in plaster walls and other places where hammering might cause damage. Steel screws are strongest, stainless screws are expensive but rust-resistant, brass screws are rust-resistant and attractive, and aluminum screws are used for working with aluminum. The heads of aluminum screws have a single slot or a star-shaped notch (use a Phillips screwdriver for the latter). Flat-headed screws stay flush with a surface, round-headed screws stick up and are easier to remove, and oval screws are easier to remove but harder to install because they must sink slightly below the surface. Screws are measured by diameter and length; if they are too wide, they may split the wood. Use 6-8-gauge screws for wood less than $\frac{1}{2}$ inch thick, 8-10-gauge screws for wood $\frac{1}{2}$ - $\frac{3}{4}$ inch thick, and 10-12-gauge screws for wood $\frac{3}{4}$ -1 inch thick.

- {ewl uwmf, MVWMF11, home.wmf} 1. round screwhead
2. oval screwhead
3. pan screw head
4. hex screwhead

Spackling paste and caulking

Spackling paste, which comes in a small can, is used to fill small cracks in plaster or wood walls. Waterproof silicone caulking fills in cracks between two tiles or between a fixture and tiles.

Staple gun

Use a staple gun to fasten light materials to wood. Some guns can use two weights of staples, one for heavy-duty jobs like upholstery and the other for tacking shelf paper or window-covering fabrics.

Vise

A vise holds an item firmly in place while you work on it. A vise is mounted to the work table and its "jaws" can be opened from 4 to 6 inches wide. Pipe jaws are rounded, whereas wood and metal jaws are flat.

Wrenches

If you have a plumbing emergency, you will probably need an adjustable crescent wrench, which opens and closes valves, and you will also need a pipe wrench to hold the pipe. (A 14-inch pipe wrench will cover most situations.) An adjustable wrench is also used to hold and turn nuts and bolts; for all-purpose use, a 10-inch wrench is useful. Do not buy a cheap wrench; if its jaws do not meet at the correct angles, it will not do the job. An Allen wrench, a small L-shaped tool, turns screws that have hexagonal, recessed heads. These come in sets of several different diameters.

Brooms

Straight brooms made with flexible plastic, nylon, or straw bristles are more versatile and easier to use than push brooms, but push brooms do the job faster on large walks and garages. Choose an oil- and water-resistant push broom with stiff bristles. Polypropylene bristles are effective for sweeping stairs, patios, and smooth walks, but if you have only a small patio or balcony, an old-fashioned straw broom will do the trick.

Chain saw

If your property is heavily wooded or if you plan to cut your own firewood, you may need a chain saw. Chain saws are not appropriate for trimming tree branches but are good for close-to-the-ground work, because you need to have a steady place to stand when you use them. Pass over used saws and outdated models for new models with built-in safety features, including antikick devices and chain and bar brakes.

Chain saws come in various sizes, from lightweight (6-9 pounds) babies to 18-pound heavyweights with 4-cubic-inch engine displacements and 24-inch bar lengths. The engine and bar sizes you need depend on size of the wood you need to cut and how much cutting you have to do. The size of the log you can cut is determined by doubling the size of the bar. A 12-inch bar is generally recommended as a minimum.

Some rechargeable, lightweight electric chain saws can handle up to six cords of wood a year. If you're cutting more than that amount, you'll need a larger, gas-powered saw. The bigger the saw, the more safety and comfort accessories you'll need. These accessories include a helmet, goggles, hearing protectors, and specially padded gloves and pants.

Cultivator

A cultivator is used to loosen soil and to destroy weeds around growing plants. If you're planting long rows of vegetables in medium to hard soil, you need a long-handled cultivator with carbon steel prongs; otherwise, a three-prong hand cultivator should be sufficient.

File

Almost anything with a blade, from a garden spade to hedge clippers, will need periodic sharpening. A 9½-inch (25 cm) flat file is an all-purpose file that should suffice. For cutting shrubs and roses--when the cut must be especially clean--hone the blade with a sharpening stone and extra-fine carbon sandpaper.

Garden gloves

For handling seedlings and delicate small plants, tight-fitting rubber or vinyl-palmed cloth gloves are preferred. They provide a good grip and resist moisture longer than plain cotton. For all-around garden chores, leather gloves are best because they are water-resistant and protect hands better from grit and thorns. Deerskin or elk skin is more supple and less bulky than cowhide; goatskin is expensive, but is very strong, can tolerate moisture, stretches to fit, and is thin enough to handle even delicate chores.

Hoe

A hoe with a solid square blade is used to break up clumps of freshly turned earth and cultivate vegetable garden rows. A Dutch hoe has a triangular shape, with a triangle cutout in the center and a slim blade beneath, making soil less resistant to the action of the hoe. A square hoe with a round hole in the center, generally used to mix cement, can also be used in the garden.

Hose

Pay extra for a garden hose that won't kink, bend, crack in the cold, burst in the heat, or rot away outdoors and you'll get long service and ease of handling. Hoses composed of different layers of reinforced rubber, synthetic fabric, and vinyl tend be of good quality. Look for a hose with a lifetime guarantee.

Ladder

Although wood ladders are less expensive than aluminum ladders, they are heavier. Aluminum ladders are steady, weigh less, and hold up over time but cannot be used when working with electric tools or around powerlines.

Ladders are given work-load ratings based on the number of pounds they can support. A Type III will support a 225-pound (102 kg) load but has been tested to carry 4 times that weight. Regardless of its rating, however, do not overload a ladder or push it to its limits. Be sure that the ladder you buy can carry your weight plus the weight of the materials you're using. Also be sure to follow all warning labels on the ladder.

Lawn mower, reel

For lawns under an eighth of an acre you can use a three- to five-blade manual mower. In fact, to get a very clean cut, a high-quality five-blade reel mower is often used on golf course putting greens. Reel mowers generally need adjustment several times during the season. Some parts of the mower must be oiled regularly, the blades and cutting edge need periodic sharpening, and the blades must be set at the desired height and tightened against the cutting edge.

Lawn mower and mulcher, power

For a lawn that's flat surfaced, evenly seeded, and less than an eighth of an acre, you may prefer an electric mower with a rechargeable battery over a reel mower. For larger lawns, a gas-powered rotary mower with a single, center-mounted blade, a 5-horsepower minimum, and a self-propelled, overhead valve-type engine is a necessity. If your lawn is half an acre or more, you may want a riding mower.

Many communities now refuse to collect grass clippings because landfills and dumps are overcrowded. A good alternative is to mulch or dispose of clippings in a compost heap, so a combination mower that can either bag or mulch grass is a practical choice. Mulching mowers cut faster, chopping the grass many times over before it hits the ground. The finely cut clippings will dry out and decompose quickly. Rich in nitrogen, they can greatly reduce the need for lawn fertilizer. Leaves, however, do not decompose at the same rate as grass, and the mulch of leaves that are too thick and hold too much moisture could damage your lawn. The bagging option comes in handy when the grass is wet or when it has been allowed to grow too long, because these conditions make mulching difficult for your mower. The bagging option also allows you to use the mower to collect fallen wet leaves for compost.

Pruning saw

For pruning trees and hard-to-reach branches without using a ladder, a long-necked pruning saw or a TK is best. A TK resembles a long bicycle chain with a serrated edge and a handle at both ends.

Rakes

A bow rake, also called a straight rake, is used in large gardens to smooth surfaces between rows, rake small stones from the soil, or put a smooth finish on a pebbled drive or walk. Bow rakes come in various sizes to fit the hand.

A lightweight fan or lawn rake with a wooden handle will clean up light debris such as leaves and cut grass. A wide fan will cover more territory, but a narrow one will fit into tight spots and around plants without snagging. Metal prongs or tines are good for rough lawns and all outdoor surfaces, but they cannot be reshaped once bent; bamboo or synthetic tines are durable as well as gentler to fine lawns.

A hand-held fan rake, also called a flower rake, is excellent for small spaces and for working around flowers without damaging them.

Shears and trimmers

Sharp, hand-held shears are for trimming or shaping ornamental shrubs with light, thin stems like hedges, bush roses, climbers, ivy, and delicate evergreens. For pruning flowers and small woody shrubs with narrow stems like roses, select pruning shears with a torque spring mechanism. For thicker stems (and branches up to 2 inches thick), you need more leverage, so choose a heavier-duty pruning tool with longer handles (called a lopper) and a ratchet-type mechanism to help make a clean cut.

Trimming lawn edges along paths and around beds requires grass shears or, for a bigger garden, cordless power trimmers or shears. These trimmers generally have long-handles so that you don't have to bend or kneel. They do, however, require cautious handling: power cords and rapidly moving trimmer parts can be dangerous. Spool line electric trimmers enable you to get closer to walls, around trees, and over uneven ground a lot easier than shear trimmers, which is why some people prefer them, but the spool line often needs replacing and may break.

{ewl uwmf, MVWMF11, home.wmf}

Snow shovel

If you live in an area where there are only one or two light to moderate (2-5 inches/5-12cm) snowfalls per year, and if you don't have a driveway to clear, a sturdy snow shovel might be all you need. A flat-bottomed, heavy-gauge, rust-resistant steel shovel can scoop up snow as well as heavy garden debris, sand, gravel, and coal.

Shovels made especially for snow come in two basic designs. Long-handled shovels with a curved steel blade are for pushing heavy, wet snow, whereas heavy-duty aluminum shovels with wide, gently curved blades are for lighter snow. Grooved blades are better than smooth ones because snow won't stick to them. Applying a layer of silicone spray or car wax to a clean shovel reduces sticking.

Snow shovel, power

If snow is frequent and deep in your neighborhood and the area to be cleared is large, you may need heavier equipment. Power shovels are fine for clearing 12-20 inch-wide paths and sidewalks in areas where the snowfall generally doesn't exceed 5 inches. A lightweight electric power shovel can handle 2 or 3 inches of snow, whereas a paddle-style power shovel can handle from 2 to 5 inches; however, gas and electric power shovels do not blow or throw snow. The power turns the wheels, and a front-mounted blade pushes the snow while you guide it. Depending on the terrain and the amount of snow, however, maneuvering a power shovel can be as arduous a task as using an old-fashioned shovel. If you already have a riding mower, you may be able to buy a snow removal attachment and have a mini snow plow.

Snow thrower

For extremely heavy work in very large areas, you may need more powerful equipment. A self-propelled, one-stage snow thrower is suitable for 4-8 inches (10-20 cm) of snow. Its churning action picks up snow and throws it in one stage. Snow deeper than 6 inches (15 cm) requires a two-stage system with a power-assisted blower. Features to look for in snow-removal power equipment include electric starters, easily adjustable chutes, and easy-to-manipulate gear shifts. Some larger snowblower models are equipped with tractor treads. Tracks are suited to hilly or rough terrain but they are hard to maneuver, especially in tight spots. Electric starters are more reliable than recoil systems and throwers with variable speeds are less likely to jam. Chutes should rotate so that you can get close to foundation walls and garage doors.

Spade

To plant or transplant bushes, shrubs, and trees, you need a spade with a sharp blade filed to a cutting edge. For digging holes deeper than 1 foot, you need a long-handled spade. Pointed spades are best for compacted soils such as clay, whereas straight-edged spades can also be used to scoop up debris.

Trowel

If you're only repotting lightweight plants into light soil and don't need to dig a hole deeper than 6-8 inches (15-20 cm), a short-handled, solid aluminum trowel will do. The handle on most trowels doubles as a dibble--a slender, solid, cone-shaped wood or metal device for poking neat holes in fairly loose soil prior to planting seeds or seedlings. If you frequently plant and transplant a lot of medium- to large-sized flowers that require a hole deeper than 8 inches (20 cm), you need a fairly hefty trowel with a long handle and a steel-forged blade.

Watering can

Galvanized steel, zinc, or stiff, heavyweight rubberized vinyl watering cans are best. Long-spouted designs with handles on the top and side are easier to lift and pour. The spray fan on the end of the spout should screw on and off so that it can be removed for when you want to pour water more quickly.

Blender

Blenders are great for a variety of kitchen tasks. A blender can whip beverages, puree soups, and turn crackers into crumbs, but it cannot whip cream. Glass blenders are generally preferable to plastic ones because they don't scratch as easily. Look for a blender with blades that can be unscrewed from the bottom--this type is the easiest to clean.

New handheld models are less powerful and can be run at only one or two speeds, but they are excellent to mix drinks in the glass or puree soup in the pot. Some can chop, mince, and grate food as well. Containers that are marked to show the amount of contents are helpful.

Bread maker

Smaller models produce an 8- to 10-slice loaf, and larger ones a 12- to 14-slice loaf. Because the usual cooking cycle takes about three hours, the machine may also have a faster-bake cycle. It may also offer a dough preparation feature that lets you take out the dough to make other baked goods such as pizza crust, rolls, or bread in a regular oven, and a clock timer so you can wake up to freshly baked bread.

Models with a viewing window may produce a loaf that's not properly browned on top.

Coffeemaker

Drip coffeemakers consist of a carafe that sits on a warming stand, a water tank, and a filter basket. The stand and the water tank are heated by the same unit.

Coffeemakers in which the basket sits directly on the carafe make serving easier, because you can leave the grounds in place until you're ready to clean up. Carafes are usually dishwasher-safe and when broken, can be replaced by inexpensive generic models; insulated thermal carafes keep the coffee warm away from the warming stand but are harder to keep clean.

One convenient feature prevents coffee from continuing to drip down when you remove the carafe. This feature is useful if you want to pour a cupful before the entire pot has finished brewing. Other features include brew strength controls and clock/timers that let you set out the coffee and water the night before and have coffee freshly brewed in the morning. To keep the cost of filters down, you can buy a permanent mesh filter.

Dishwasher

The dishwasher is one of the most labor-saving devices in the kitchen. It is also a water and energy saver because a single load of dishes uses only about two gallons of hot water--much less than would be used by hand-washing several smaller loads. All dishwashers should have a power-saver option that dries the dishes by either drip drying or by using a fan. If you usually do only one load a day, this option will be useful.

Some dishwashers also have a delay-start option. This option lets you automatically run the dishwasher at the most convenient time, and perhaps when energy rates are cheaper. Another convenient option is an internal water heater, which makes the dishwasher water somewhat hotter than hot tap water, making for a better wash.

Surprisingly, there is a wide range of how well dishwashers can clean dishes. Two key factors to look at are the number of spray holes in the machine and the number of washing cycles. Better machines should have more spray holes. As for washing cycles, a heavy cycle and a light cycle should be enough, but you might also want a rapid wash cycle if you have lots of dishes to wash at once. Some machines come with a delicate cycle intended for washing china and crystal but be aware that even the delicate cycle can damage dishes with gold trim.

Another handy dishwashing cycle is the prerinse setting. When you don't yet have a full load of dishes, you can use this feature to quickly rinse the dishes to prevent food from caking on them. Other features to consider include folding racks that hold extra glasses, and special designs that are supposed to accommodate more dishes. A stainless steel interior (generally found in more expensive European models) lasts longer than plastic.

Electric frying pan

An electric frying pan is a frying pan with its own heating element. Because it heats food evenly, it gives predictable and consistent cooking results. When you entertain, an electric frying pan is handy to cook bigger batches of food at a time and to keep food warm. Electric woks are similar in design although they are meant to be used primarily for stir-frying.

Large, square, domed pans are the most versatile, but the real test of an electric frying pan is how evenly it distributes heat. Electric frying pans made of anodized aluminum are easy to clean: it is unlikely to be damaged by metal utensils and its surface resists sticking.

Electric handheld mixer

To whip cream or mix cookie dough, a portable mixer--lightweight, inexpensive, and easy to store--is the best appliance. Newer heavier ones can even stir a very thick batter, such as bread dough.

Cordless models must be recharged. If you use a mixer only infrequently, it probably makes more sense to buy a corded mixer that you can store in a drawer and take out when needed. Cordless mixers usually come with only one beater, as opposed to two with electric models. Furthermore cordless mixers are not as powerful as plug-in models and may run out of charge before your job is done.

A large range of speeds is not really necessary, because you can handle virtually any job with only three speeds. Try any model you are considering to see if it feels comfortable and is light enough to work with. And look for as sleek a design as you can find: the less nooks and crannies, the easier your cleaning job will be.

Food processor

What makes food processors so versatile is the strength of their motors, which makes it possible to grind even meat and to mix the heaviest dough. Using one or another of the various blades, you can slice or chop fruits, vegetables, and nuts. But for pureeing or mixing liquids, you're better off with a blender; for mashing or whipping jobs, a portable mixer is better.

For small chopping jobs, a mini-chopper is handy. It's easy to clean, inexpensive, and takes up little counter space. But for shredding or slicing, you need at least a compact food processor that holds up to four cups; if you cook a lot and don't want to process many small batches, you may prefer a full-size processor with a capacity of up to twelve cups.

To cut down on your preparatory work, choose a model with a large feeding tube that will accept large chunks of food. As for cleaning, bear in mind that complicated feeding tubes are harder to clean. All food processors come with a chopping blade and a slicing or shredding disk, and most models offer optional disks for making thicker or thinner slices and for grating. Some of these add-ons are useful, but avoid add-ons for whipping cream or making dough; these jobs are better performed by a portable mixer.

Garbage disposal

With a few exceptions such as banana peels, corn husks, and celery, a garbage disposal can handle almost all organic garbage.

The system is composed of three parts: the grinding chamber (where you pour the food), a shredder plate with an attached motor at the bottom, and a grinder ring around the edge. Water carries the food particles to the sewer or to the septic system.

A batch feed system is the safest, since the motor doesn't start until a stopper is placed in the opening, but this type of unit is hard to find and more expensive than a continuous-feed machine. A continuous-feed machine operates at the flick of a wall switch.

The best way to judge the durability of a garbage disposal is to look at its horsepower. Machines with larger motors won't necessarily be faster, but they will be more powerful.

Machines with stainless steel parts are more durable than machines with carbon steel or aluminum parts, which can rust and corrode. Other features that help prolong the life of the machine are an automatic reverse motor, an anti-jam mechanism, an overload protector, and a detergent shield that protects the motor from caustic cleaners. Also check the noise level of the machine: a quieter machine is not only more pleasant to live with, but also better balanced, which means less wear on the motor. To cut down on noise, have the disposal installed with a cushioned mounting bracket.

Juicer

Blenders, which can be very powerful, are not the same as juicers. True juicers are most commonly centrifugal types, which shred vegetables and fruits, or masticating types, which chew the produce up and produce a pulpier liquid. Masticating types are generally larger, more expensive, slower to operate, and harder to clean and assemble, but they can grind, grate, and homogenize (to make nut butters or sorbets) in addition to juicing. Before you buy, check the machine for noise, ease of assembly, and ease of cleaning (which depends on how many parts the juicer has and how complex they are).

For homes with small children, a safety lock is a good feature. You may want a juicer that can make more than one or two glasses of juice at a time or one that keeps operating while you clean out the pulp. Remember that if the machine has a small chute, the produce will have to be cut into smaller pieces before it is fed into the machine.

Microwave oven

If you need a microwave oven to just heat things such as leftovers, frozen dinners, and liquids then you can probably do with a less expensive model. But if you plan to cook with your microwave, then you should consider buying a high-wattage model that will cook hotter and faster. Furthermore, many microwave cookbooks are written for these high-wattage microwave ovens; if you have a less powerful one, you'll have to adjust the cooking times, and the results may not be satisfactory.

Before you shop for a microwave oven, consider where you want to put it. Although most microwave ovens are designed to go on the counter, you can also find ones that fit over a range or under a cabinet. If you have kids, try to put the microwave oven in a place that they can safely and easily reach because one way or another, they'll try to use it anyway.

Be aware that microwave ovens only heat $\frac{1}{4}$ to 2 inches into the food, so the center of a thick piece of food (such as a chicken) will only be cooked as the heat from the outer layers moves inward. The cookbooks that come with your microwave should give you tips on best cooking times and techniques for specific foods; in general, you want to make sure that your food is cooked thoroughly.

A microwave oven that has a turntable can give you much better results. The turntable slowly rotates the food as it is being heated, so that the food cooks evenly. Although the turntable takes up some of the already limited space in your microwave, the results are well worth the small loss of space.

Some popular features on today's microwaves include variable power levels, a special defrost power level (uses less power to slowly defrost food), and multistage programs (lets you start cooking at one power level, and then automatically switch to another one a few minutes later). But one of the most often overlooked, yet most important, features is ease of use. A microwave full of features is no good if you can't use them! Ask the salesperson to show you how to use the more common features--then try them out yourself.

Ranges and Ovens

Ranges

If gas connection is an option, your first choice is between a gas and electric range. Costs are about the same, as is size, and now even gas broilers are conveniently placed at the top of the oven (leaving the bottom drawer for storage).

Gas ranges heat up faster than electric ranges but cook slower: boiling water over an electric coil burner takes about one-third less time, and over an electric sealed burner about one-fifth less time than boiling it over gas. Also gas may scorch some foods over sustained cooking and isn't as clean as electricity, but it is cheaper to operate and many cooks prefer it because the heating intensity can be adjusted more quickly.

Sealed-burner models in gas and smooth-top electric ranges are easier to clean but slower to cook than coil tops. However sealed-burner models can be more dangerous than coil tops because they don't look hot even when they still are hot. Glass ceramic tops are attractive but slow to warm up and cool down and are easily stained. Induction cook tops have none of these disadvantages, but aren't ideal for fast, hot cooking and can only be used with certain cookware.

Depending on the design of the kitchen, you can choose a freestanding range that's finished on the sides, a drop-in or slide-in model, which is not, or a built-in model with a separate cook top and oven. Professional quality stoves offer a bigger top with more burners and additional options such as a grill and a deep fryer.

Ovens

Conventional, self-cleaning, and continuous-cleaning ovens are available either attached to a cook top or as a separate wall unit. All types use a lot of energy; moreover, self-cleaning ovens may be smaller than normal, and continuous cleaning ovens don't always clean that well. Many professional cooks prefer to use an electric oven because it maintains a more even temperature and doesn't dry food out.

Electronic gadgetry for the oven adds to the price and increases the possibility of need for repair, but if the oven has a lot of features, a display can make it much easier to use. Convection ovens, a recent development, cook food faster and at lower temperatures, thus saving both time and energy, but they require some adjustments in conventional recipes.

Refrigerators and Freezers

Refrigerators

One of the most important factors for buying a refrigerator is storage capacity. An informal rule of thumb is to allow 12 cubic feet of capacity for the first two people living in the house, and then two more cubic feet for each additional person. Even at full capacity, there should be enough room inside the refrigerator for proper air circulation.

Besides the traditional refrigerator with the freezer compartment on top, there are also models with the freezer compartment on the bottom and side-by-side models with the refrigerator on one side and the freezer on the other. Some people like models with the freezer on the bottom because more of the food is at eye level, but it is really a matter of personal preference. Side-by-side models are convenient, and have a lot of space, but are more expensive. For any of these models, look at the door shelves, and make sure that they are big enough for your needs and that the retainer bars on the door are sturdy.

Another important factor to consider is cleaning. Keep in mind that darker appliances tend to look dirty faster, and that textured surfaces collect more grime and are harder to clean. For cleaning up around and behind the refrigerator, built-in casters (small swiveling wheels) make it easier to move the refrigerator. For the interior of the refrigerator, look for removable shelves and drawers that are easy to clean; glass shelves tend to need more cleaning than wire rack shelves.

Some common convenience features to consider are an exterior water and ice dispenser, an automatic ice maker (especially helpful if you entertain a lot), and special storage areas with adjustable temperatures. Most larger refrigerators will automatically defrost, but the smaller models generally have to be defrosted manually. Manual defrost refrigerators use up less energy, but only if they are properly maintained and defrosted as recommended by the manufacturer.

Before you buy a refrigerator, make sure that it will fit where you want to put it and make sure that the door opens in the direction that is most convenient for you. Consider how you will load and unload groceries, and where the counter is relative to the door. If you think that you might move in the near future, you should consider getting a refrigerator that has interchangeable door hinges so that you can have the door open from either side.

Freezers

One important factor to consider when shopping for a freezer is whether it will be in a heated area. If you plan to put the freezer in an unheated area such as a garage (or any area where the temperature goes below 55°F), you need to make sure the freezer is designed to work in cold places. Although most manual defrost freezers can be operated in colder temperatures, many

combination refrigerator/freezers will not function properly in temperatures below 55°F and may completely shut off below 42°F.

In terms of defrosting, most chest-style freezers manually defrost, but a number of upright freezers automatically defrost.

To calculate how much capacity you need, use this informal rule of thumb: allow 3 to 4 cubic feet of storage for each person living in the house. But keep in mind that the capacity you need really depends on your buying habits.

Some features to look for in a freezer are adjustable shelves, casters (small swiveling wheels), a drain to help make defrosting easier, and a safety light to warn of power failure.

Rice cooker

If you eat a lot of rice, or if you do a lot of entertaining, a rice cooker can be convenient. A rice cooker makes it very quick and easy to prepare rice and gives consistent results. Rice cookers are great for entertaining because you can easily make a lot of rice with little effort. When buying a rice cooker, consider how many people you will typically be cooking for and pay attention to the minimum amount that you can make at one time. Rice cooker sizes range from one cup of rice (about enough for one person) to up to 20 cups of rice. In addition to cooking rice, some rice cookers can be used for steaming food.

Toaster

Look for toasters that hold four slices instead of two (particularly if they have separate controls for two slots at a time) and that have stay-cool plastic housing (unlike the traditional models).

There are also toasters with a single long slot or extra-wide slots to accommodate oversized bread or thicker items such as bagels. But not all models advertised as "wide" are wide enough--at least an inch wide--to be practical. Other extra features to look for include undercabinet mountings (good if space is at a premium), a crumb tray for easier cleanup, and a setting that keeps toast warm.

Toaster oven

If you have limited room and frequently broil or bake only small amounts of food, a toaster oven can save space as well as energy. A toaster oven does an adequate job of toasting bread and can cook a small meal using less energy, although it may not do either job as well as a conventional toaster or broiler. Removable racks and doors and porcelain-coated steel, rather than aluminum, make cleanup easier.

Beer can opener

In addition to opening cans and bottles, a beer can opener can be used to help you open tight jars. Just insert the tip of the opener under the lid of a jar to release the vacuum from the jar and make the jar easier to open. A beer can opener can also be used to help with a "press here" area on a box that doesn't seem to budge.

Cooling racks

In addition to cooling cakes, a pair of cooling racks can be used to hold fish (or other foods that tend to fall apart) on the grill for easy turning without crumbling. Cooling racks are less expensive than gadgets sold just for that purpose. Cooling racks can also be used in a roasting pan, under meat, to allow fat to drip away from the meat.

Colander

A colander is a bowl with perforations that generally has legs or handles. It works like a strainer but is used almost exclusively to drain pasta and other foods.

Cutting board

Wooden cutting boards can split and collect dirt, but researchers have found that plastic boards, previously considered safer, harbor more bacteria. Get a cutting board that is large enough to be used with a large knife. If necessary, you can later add a smaller cutting board (e.g., to mince a garlic clove, to cut a lemon at the bar) that is quicker to clean.

Food mill

Before the days of food processors, food mills were the only tool available to puree cooked fruits and vegetables. If you do not have a food processor, you may consider getting a food mill.

Kitchen shears

For trimming the fat from meat, mincing meat, cutting pizza, trimming leafy vegetables, and countless other cutting and chopping jobs, kitchen shears are a must. Be sure to clean them after every use, and use them only for the kitchen.

Knives

Blades of good quality knives are generally made of high-carbon stainless steel. The handle should be well-finished and the rivets should extend all the way through. There should be no gaps between the handle and the blade where bacteria can hide.

You can buy serrated-edged knives that never need sharpening but the finest knives do. When the blade becomes dull, have the knife sharpened professionally at a hardware store, or do it yourself with an electric sharpener or with a sharpening steel. To sharpen a knife, first lubricate the steel with a bit of salad oil. Pull the knife either toward you or away from you, but always start with the blade heel end and continue toward the tip. First work the knife on top of the steel, then underneath, so you can hone both sides of the knife.

An electric knife allows you to make very thin slices (as on a roast) and to cut items (like a tomato) with a delicate touch that leaves slices unsquashed. But at a minimum, you need the following:

Boning knife

A boning knife has a very slim-blade that is flexible enough to slip between meat and bone. This knife is also useful for trimming fat off of meat.

Chef's knife,

A chef's knife has an all-purpose large blade that may be slightly curved. The knife is used for chopping and mincing, dicing, slicing and can also be used for carving, although the conventional carving knife has a large, triangular blade better suited for carving.

Paring knife

A paring knife has a short blade used for peeling fruit. This knife can be used for other light cutting jobs.

Serrated knife

The serrated knife has a shark's tooth kind of pattern; it can only be sharpened professionally. This knife is very useful for cutting crusty fresh bread, soft tomatoes, and other items which you don't want to crush while cutting.

Two other knives that you may want to consider purchasing are:

Carving knife

A carving knife has a large, triangular blade used to cut roasts. This knife is often sold with a carving fork.

Electric knife

An electric knife cuts food without squashing it. This knife is also useful for quick carving.

Knife rack, magnetic

Although a knife block can safely store knives, it does not hold many. A better solution is a magnetic bar, which can also hold a beer can opener, a peeler, and kitchen shears, to name a few. A magnetic knife rack keeps your knives in better shape than if they were kept in a drawer because the blades aren't banged around.

Measuring cup

In addition to measuring liquids, measuring cups can be used in the microwave to melt butter and heat sauce. You can also use them to pour pancake batter on the griddle.

Mixing bowls

For mixing and storing foods, get a set of stainless steel bowls. They are indestructible and nonporous. Even after you use them for nonfood jobs (like doing the hand laundry), they can be washed out and returned to the kitchen. They usually come in a set of three; if they have rings, they can be hung conveniently. Plastic bowls that have rubber on the bottom (to prevent them from skidding) are a good idea, but you can also put a damp towel under bowls for the same purpose.

Be aware that if you use a plastic bowl to hold a household cleaner, then you can't use that bowl to hold food. Plastic is porous and may soak up some of the cleaning solution, which could then get into the food. If you have plastic bowls that are used for cleaning, be sure to label them as such.

Potato peeler

A potato peeler can be used on other kinds of food. Use it to peel carrots and kiwi fruits, to shave chocolate and cheese, and to trim damaged sections off celery. The tip of the peeler can also be used to take the "eyes" out of potatoes.

Clipping nails

Trim nails according to your vet's instructions.

Canine heartworm medication for outdoor dog

Carried by mosquitoes, canine heartworm usually affects outdoor dogs (particularly hunting and working dogs) and is often fatal. Signs of infection include coughing, sluggishness, and labored breathing. The vet may give medication for this condition as a preventive measure, after the annual blood test.

Flea treatment

Fleas harbor tapeworm eggs that can irritate your pet. Flea treatment may vary according to area. Dogs in warmer climates may be treated more frequently, so consult with your vet. The usual treatments include powders, sprays, dips, treated collars, or pills. Vacuum your carpet regularly and thoroughly, and use aerosol defleaing sprays on bedding. You may need to call in a professional to deflea your house and even your lawn and garden. If your dog ever rides in the car, don't forget to treat your car, as well.

Illness

The most common problems in puppies are vomiting (if more than 2 or 3 times, your puppy has probably swallowed a foreign object) and diarrhea (generally due to overfeeding, teething, or intestinal parasites).

Call your vet if you notice any of the following signs:

- * unusual behavior*
- * sudden viciousness*
- * lethargy*
- * abnormal (e.g., bad smelling, creamy, bloody) discharge from any part of the body*
- * abnormal lumps*
- * limping, or difficulty getting up or lying down*
- * loss of appetite*
- * noticeable weight loss or gain*
- * excessive water consumption*
- * difficult, abnormal, or uncontrolled waste elimination*
- * harsh breathing and coughing;*
- * excessive head shaking, scratching, and licking or biting of any part of the body*
- * loss of hair*
- * sores*
- * ragged or dull coat*
- * foul breath*
- * excessive tartar deposits on teeth*

In older dogs, among the first problems is hearing loss. Cleaning the ears of wax may alleviate the problem. If not, ear mites may be the problem. Older dogs should also be seen by the vet if they have any of the following symptoms: increased respiration with shortness of breath (could be heart trouble); coughing (congestive heart failure); fainting spells, sudden collapse, or paralysis (heart, cerebral stroke); increased thirst and urination (nephritis); halitosis (bad teeth or gums); or a urine odor from the mouth (uremia).

Lyme disease inoculation in high-risk areas

Deer ticks, which cause Lyme disease, are particularly small and hard to detect. Like all ticks, they may be picked up from low-lying shrubbery. If you live in a high-risk area for deer ticks, ask your vet about Lyme disease inoculation.

Parasitic infection

Signs of parasitic infection, such as scratching, bald spots, or skin inflammation may or may not be evident. Lice may or may not cause itching but will suck blood, thus weakening a dog. Your vet may have to detect and treat lice. Ticks are usually picked up in low-lying shrubbery. They hide in the neck, between toes, in ears, and in the folds between the legs and body. A dip may help. Ear mites cause scratching and open sores in the ears. Mites cause holes that can lead to potentially fatal bacterial infections. Your vet may have to detect and treat ear mites.

Routine physical and dental checkup

For the first visit, a regular veterinary examination should include a stool analysis. During annual visits, the skin, extremities, and the insides of the mouth and ears should be thoroughly examined. The dog's temperature should be taken, its abdomen palpated, and its heart monitored with a stethoscope. Blood may be tested for heartworm. Also, the dog's teeth should be checked.

Sterilization

Surgical sterilization reduces a number of behavioral and medical problems, but it does not affect the dog's natural personality or lead to obesity. For female dogs, spaying eliminates the problems associated with heat periods. The veterinarian may recommend sterilization if a dog has a congenital defect or a difficult personality that hampers breeding. Sterilization also prevents unwanted litters. For a detailed brochure, entitled Pethood or Parenthood, send a stamped, self-addressed envelope to The American Veterinary Medical Association, 930 North Meacham Road, Schamburg, IL 60196.

Vaccination, bordetellosis

Bordetellosis is transmitted by contact with nasal secretions of infected dogs. Signs include coughing and nasal discharge.

When to vaccinate: at age 6-8 weeks, at 10-12 weeks, at 14-16 weeks, and then annually.

Vaccination, distemper

Signs of distemper include respiratory problems, vomiting, and diarrhea. This highly contagious disease is fatal 50% of the time and even when not fatal can have lasting effects.

When to vaccinate: at age 6-8 weeks, at 10-12 weeks, at 14-16 weeks, and then annually.

Vaccination, infectious canine hepatitis (CAV-1 or CAV-2)

Infectious canine hepatitis is transmitted by contact with contaminated objects. Signs of the disease include whiteness or cloudy eyes, respiratory tract infection, vomiting, diarrhea, depression, and loss of appetite. This disease can cause lasting effects including heart damage and is often fatal.

When to vaccinate: at age 6-8 weeks, at 10-12 weeks, at 14-16 weeks, and then annually.

Vaccination, leptospirosis

Leptospirosis is transmitted by any contact with the urine of infected animals. Signs include vomiting, impaired vision, and convulsions. The disease may also cause kidney failure.

When to vaccinate: at age 10-12 weeks, at 14-16 weeks, and then annually.

Vaccination, parainfluenza

Parainfluenza is transmitted by contact with nasal secretions of infected dogs. Signs include respiratory ailments.

When to vaccinate: at age 6-8 weeks, at 10-12 weeks, at 14-16 weeks, and then annually.

Vaccination, rabies virus

The rabies virus can attack the central nervous system of all warm-blooded animals. Signs of infection include abnormal behavior: wild animals, for example, might appear tame or friendly. With "furious" rabies animals froth at the mouth and bite, but with "dumb" rabies the first sign of disease is usually paralysis of the lower jaw that spreads to limbs and vital organs. Rabies virus is transmitted by saliva, usually by a bite from an infected animal, and is fatal.

When to vaccinate: at 12 weeks, at 64 weeks, and then annually or every 3 years, depending on type of vaccine.

Clipping claws

Untrimmed claws can grow into the pawpad, so they should be clipped regularly. Cats' nails grow at different rates, but as a general rule clipping should be done approximately once a month. Special clippers are available for this purpose, and your vet can show you how to use them. The main idea, as with human nails, is not to trim too close to the quick (the flesh under the fingernails).

Illness

Call your vet if you observe any of the following signs:

- * unusual behavior, sudden viciousness, lethargy*
- * abnormal (e.g., bad smelling, creamy, bloody) discharge from any part of the body*
- * abnormal lumps, limping, or difficulty getting up or lying down*
- * loss of appetite*
- * noticeable weight loss or gain*
- * excessive water consumption*
- * difficult, abnormal, or uncontrolled waste elimination*
- * harsh breathing or coughing*
- * excessive head shaking, scratching, and licking or biting of any part of the body*
- * sores, ragged or dull coat, or loss of hair*
- * foul breath or excessive tartar deposits on teeth*

Parasitic infection

Signs of parasitic infection, such as scratching, bald spots, or skin inflammation, may or may not be evident. Flea treatments such as powders, sprays, dips, treated collars, or pills should be recommended by your vet. Vacuum regularly and thoroughly, and use aerosol defleaing sprays on bedding. Fleas harbor tapeworm eggs, which can affect pets. Lice may or may not cause itching but will suck blood, thus weakening a cat. Your vet may have to detect and treat lice. Ticks are usually picked up in low-lying shrubbery. They hide in the neck, between toes, in ears, and in the folds between the legs and body. A dip may help. Ear mites cause scratching and open sores in the ears. Mites cause holes that can lead to potentially fatal bacterial infections. Your vet may have to detect and treat ear mites.

Routine physical and dental checkup

For the first visit, a regular veterinary examination should include a stool analysis. During annual visits, the skin, extremities, and the inside of the mouth and ears should be thoroughly examined. The cat's temperature should be taken, its abdomen palpated, and its heart monitored with a stethoscope. The cat's teeth should be checked, and a scaling (to remove tartar) may be recommended every few years.

Sterilization

Surgical sterilization reduces a number of behavioral and medical problems, but it does not affect the cat's natural personality or lead to obesity. The veterinarian may recommend sterilization if a cat has a congenital defect or a difficult personality that hampers breeding. Sterilization also prevents unwanted litters. The surgery should be done as early as possible, between age 6 months and 1 year. For a detailed brochure, entitled Pethood or Parenthood, send a stamped, self-addressed envelope to The American Veterinary Medical Association, 930 North Meacham Road, Schamburg, IL 60196.

Vaccination, feline panleukopenia

Vaccinate your cat against feline panleukopenia, also known as feline distemper, infectious enteritis, and cat fever. This disease is highly contagious, directly or indirectly, for up to 1 year via dishes, bedding, and the hands and clothing of handlers. Most common in warmer months, it often affects kittens, sick cats, and indoor cats that have not had a booster shot. Older, outside cats often acquire a natural immunity. Feline panleukopenia is not transmissible to humans. Signs of disease include loss of appetite, fever, lethargy, and vomiting. Fatality is 50-70%. Even indoor cats need regular vaccinations because owners can transmit diseases from outside.

When to vaccinate: once at age 8-10 weeks, again at 12-16 weeks, and then annually.

Vaccination, feline calicivirus, feline pneumonitis, and feline viral rhinotracheitis

Be sure to vaccinate your cat against these diseases because they are highly contagious. Signs of disease include respiratory problems.

When to vaccinate: once at age 8-10 weeks, again at 12-16 weeks, and then annually.

Vaccination, feline leukemia virus

A disease of the immune system, feline leukemia virus increases susceptibility to other diseases. Signs of disease include weight loss, illness, lethargy, and diarrhea. A blood test will reveal the presence of this disease. Ask your vet about testing for this disease every 1-3 years. Even indoor cats need regular vaccinations because owners can transmit diseases from outside.

When to vaccinate: once at age 8 weeks, again at 12 weeks and 24 weeks or again at 13-14 weeks depending on type of vaccine, and then annually.

Vaccination, rabies virus

The rabies virus can attack the central nervous system of all warm-blooded animals and humans. Signs of infection include abnormal behavior: wild animals, for example, might appear tame or friendly. With "furious" rabies animals froth at the mouth and bite, but with "dumb" rabies the first sign of disease is usually paralysis of the lower jaw that spreads to limbs and vital organs. Rabies virus is transmitted by saliva, usually by a bite from an infected animal, and is fatal.

When to vaccinate: once at age 12 weeks, again at 64 weeks, and then annually, or every 3 years, depending on type of vaccine.

